DOCUMENT RESUME

ED 047 679	JC 710 067
AUTHOR	Tomlinson, Robert M.; Rzonca, Chester S.
TITLE	An Exploratory Analysis of Differential Program Costs of Selected Occupational Curricula in Selected Illinois Junior Colleges. Final Report.
SPONS AGENCY	Illinois State Board of Vocational Education and Rehabilitation, Springfield. Vocational and Technical Education Div.
REPORT NO	RDC-A1-028
PUB DATE	Jan 71
NOTE	194p.
EDRS PRICE	EDRS Price MF-$0.65 HC-$6.58
DESCRIPTORS	*Cost Effectiveness, Educational Finance, *Junior Colleges, *Program Costs, *Resource Allocations, Technical Education, *Vocational Education
IDENTIFIERS	Illinois

ABSTRACT

This cost differential study was designed to use data collected by the Division of Vocational and Technical Education and the Illinois Junior College Board in an effort to analyze differential program costs of selected occupational curricula in six sample community colleges incurred in the fiscal year 1968-69. To be effective, a cost accounting system must be developed one year in advance of planned use. The objectives of the educational system and specific institutions, as well as the nature of the instructional program, provide a framework within which all cost analysis must be conducted and interpreted. The most significant variable affecting the cost per student-hour, the course cost, and the program cost is the size of enrollment in individual classes. This study has also (1) stressed the need of the Division of Vocational and Technical Education for accurate cost data, (2) pointed out some limitations of the Unit Cost Study conducted by the Illinois Junior College Board, (3) described some of the problem areas and weaknesses of methods used to allocate costs, and (4) provided recommendations implementing an accurate program cost identification system. (CA)

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An Exploratory Analysis Of Differential Program Costs Of Selected Occupational Curricula In Selected Illinois Junior Colleges

FINAL REPORT
RESEARCH AND DEVELOPMENT UNIT
Project No. RDC-A1-028

JC 710 067

State of Illinois
Board of Vocational Education and Rehabilitation
Division of Vocational and Technical Education
Dr. Michael J. Bakalis, Executive Officer
Sherwood Dees, Director

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AN EXPLORATORY ANALYSIS OF DIFFERENTIAL PROGRAM COSTS OF SELECTED OCCUPATIONAL CURRICULA IN SELECTED ILLINOIS JUNIOR COLLEGES

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January, 1971

UNIVERSITY OF CALIF.
LOS ANGELES

MAR 30 1971

CLEARINGHOUSE FOR
JUNIOR COLLEGE
INFORMATION

The Research reported herein was performed pursuant to a contract with the State of Illinois, Board of Vocational Education and Rehabilitation, Division of Vocational and Technical Education, Research and Development Unit. Contractors undertaking projects under such sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Board of Vocational Education and Rehabilitation position or policy.

STATE OF ILLINOIS
BOARD OF VOCATIONAL EDUCATION AND REHABILITATION
DIVISION OF VOCATIONAL AND TECHNICAL EDUCATION
RESEARCH AND DEVELOPMENT UNIT

FOREWORD

The following cost-differential study represents the final report of a project sponsored jointly by the University of Illinois and the State Board of Vocational Education and Rehabilitation. The study was designed to utilize data collected by the Division of Vocational and Technical Education and the Illinois Junior College Board in an effort to analyze the differential program costs of selected occupation curricula in six sample community colleges.

Until now, accurate information describing the financial parameters of various occupational curricula has been limited. Accountability of educational programs is of main concern at the present time by the State Board of Vocational Education and Rehabilitation, the State Advisory Council for Vocational Education, and the Illinois Junior College Board.

Pertinent material of a departmental nature is not contained in this report and can be reviewed by contacting the Research and Development Unit in Springfield, Illinois.

Robert Gray
Coordinator
Research and Development Unit

PREFACE

Accountability for educational program expenditures is becoming an ever-increasing concern of local and state administrators. While industry and business have increased their level of productivity in terms of salable products or services per unit of man-hours worked, relatively stable student-teacher ratios during a period of rising salaries and supporting costs have resulted in higher expenditures per unit of instruction achieved. A larger percentage of the industrial and business budget has been devoted to capital equipment expenditures while a greater percentage of the educational budget has continued to be devoted to personnel. Unfortunately, higher costs accompanied by the demand for additional educational offerings comes at a time when grudgingly yielded tax dollars must be shared with increased demands for other public-supported services.

The contributions of vocational education--its attempts to meet man-power needs, increase career options of the individual, and lend intelligibility to general education--are certainly of value to our society. The continued success of vocational education programs, however, is dependent upon the availability of funds which are often considered supplemental when the costs of occupational programs are compared with more traditional academic offerings. This study was funded as an attempt (1) to identify pertinent variables such as class size, equipment, supplies, and facilities, (2) to identify occupational program costs at the community college level, (3) to provide a comparison of these costs to the costs of liberal arts programs, and (4) on the basis of collected information and gained experience, to recommend a system for the collection and evaluation of accurate data which reflects the factors affecting costs of occupational curricula.

The need for such data by the State Board of Vocational Education and Rehabilitation (the state agency responsible for the continued success of occupational programs) is apparent in view of the following considerations; such data could be used:

1. In developing a basis for determining a structure of costs and projections upon which requests for state appropriations can be based. Since both the Board of Vocational Education and Rehabilitation and the Junior College Board are providing funds to occupational programs, policies of each could be based on common information and planning.

2. To develop equitable funding procedures based upon the actual costs of different programs.

3. To develop sound management techniques applied to the expenditure of funds at state and local levels.

4. As a consideration in determining the location and number of programs.

5. As an inducement to initiate, continue, or discontinue programs as deemed necessary by our changing technology and its manpower needs

The needs of public education for public resources will always exceed the availability of such resources. The Division of Vocational and Technical Education must therefore exercise its role in the approval and location of programs. Such approval should be based upon statewide manpower needs, program costs, and the ability of the local district to support programs in terms of student enrollment and financial contribution. While other state agencies also have responsibilities for determining costs and allocating funds, it is the direct responsibility of the Division of Vocational and Technical Education, as a matter of sound accounting procedure, to collect and report cost data as it relates to occupational programs.

Organization

The final report as originally submitted contained sections describing course and discipline costs. The identification of discipline costs and the computation of course costs were an essential preliminary step in the determination of program costs and cost differentials. In addition appendices were provided summarizing and describing the Occupational Detail of the Junior College Board Unit Cost Study (1968-69). In view of printing costs these sections were omitted from this current publication. A limited number of complete copies (5) were submitted to the Research and Development Unit (DVIE) in addition to those (3) retained by the Department of Vocational and Technical Education, University of Illinois.

This publication is organized according to the following format. Chapter I provides an introduction to the study, a description of cost analysis procedures, and defines the procedures used in determining course and program costs as well as the cost differentials. Chapters II through VII each describe one of the selected institutions. As provided in the final report, each chapter contains (1) an introduction to the institution, (2) a program summary, (3) a program detail, (4) and an identification of institutional expenditures used in this study. Chapter VIII provides recommendations for future cost studies while Chapter IX provides a discussion, comparison of data across institutions, and the summary.

ACKNOWLEDGEMENTS

This study was made possible through funds provided by the Research and Development Unit, Division of Vocational and Technical Education, Board of Vocational Education and Rehabilitation, State of Illinois and the cooperation of the Department of Vocational and Technical Education, University of Illinois, which assumed the responsibility for conducting the study.

As with any activity of this type it is the work of many concerned individuals which results in a successful study. Sincere appreciation is due to the business managers, directors of institutional research and staff members of the participating community colleges. Without their cooperation this study could not have been possible. It is important to note that their cooperation was not limited to providing data but included suggestions as to the limitations of available data and recommendations for future studies concerned with the acquisition of such data on a continuing basis. While it is difficult to pinpoint the persons responsible for particular suggestions; it is hoped that their intent has been expressed in the sections of this report devoted to limitations and recommendations.

Thanks also are due to Dr. Carl Thornblad for his valued opinions and assistance in making available information from the Illinois Junior College Board Unit Cost Study. The Illinois Junior College Board is acknowledged for its permission to utilize data from the 1968-69 Unit Cost Study. Mr. Robert Gray and Dr. John Klit of the Illinois RCU and Dr. Bob N. Cage, Florida State University, are acknowledged for their assistance during the study.

Recognition is due to Miss Marcia Langsjoen, and Miss Teresa Peterson for their capable assistance during this study and Mrs. Sandra Bryant for the final typing of the report.

Robert M. Tomlinson, Project Director
Chet Rzonca, Principal Investigator
September, 1970

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CHAPTER I

INTRODUCTION TO THE STUDY

Cost analysis procedures are essential to education and should be an integral part of accounting systems developed at the state and local levels. Illinois community colleges, many of which are relatively new institutions and in a period of rapid growth, have adopted accounting procedures consistent with the uniform accounting system developed by the Illinois Junior College Board.

The established budget categories, however, lack sufficient refinement necessary for the identification of expenditures to the particular courses for which they were incurred. While the year-end audited reports account for all expenditures of the institution, they lack adequate refinement to identify the course, department, or students for which expenditures were incurred.

Development of the accounting and record keeping procedures to be used on a continuing basis must be based on the purposes for which the data are to be used. The objectives of the educational system and the specific institution as well as the nature of the instructional program provide the framework within which all cost-analysis must be conducted and interpreted. Analysis of costs should take place at two levels (1) a high level of precision for research and planning purposes, and (2) an operational level where analysis can be made from on-going data. If the on-going institutional accounting procedures can include additional refinement without placing a burden upon institutional staff, such procedures can also provide the basis for effective cost accounting and program planning.

I. THE NATURE OF COST STUDIES

All institutional expenditures may be verified through receipts or vouchers issued for their payment. Presumably, with the understanding and cooperation of administrators and teachers, it should be possible to use these vouchers to assign each expenditure to a specific course or group of students for which it was incurred. In practice, however, this can be a time-consuming and costly process.

Use of basic data from vouchers provides an accurate means for identifying each expenditure; determination of the amount of the expenditure that should be allocated to each department, laboratory, course, etc. is a separate and difficult task. Making such allocations on a continuing basis is only possible if the procedures are developed and included as part of the institution's accounting system. To be effective and useable, a cost accounting system must be developed approximately one year in advance of the time it is to be initiated so that all persons concerned with its implementation can be familiar with it and apply it properly. Data sufficiently reliable for studies and planning will not usually be possible until after the system has been used the second year.

According to the Uniform Accounting Manual developed by the Illinois Junior College Board each expenditure is charged to a discipline or department account. The choice as to level of refinement (department or discipline) is left to the option of the local college. Most cost studies use existing data and the categories within the budget to identify expenditures at the department level and, in turn, use some means to assign such expenditures to the courses offered by that department.

The use of generalized assignment procedures tends to produce a leveling effect. Courses which should not share equally in the overall departmental expenditures are included on an equal basis.

Costs which should be charged entirely to one or more courses (such as special equipment, supplies, or services) are assigned equally to all courses. This in turn lowers the assignment for those courses which have required the expenditure. Cost assignment procedures for activities shared by two or more departments are also lacking.

The previous discussion has been concerned with the identification of expenditures and their assignment to the appropriate course or courses. The interrelationship of these expenditures to students has not been treated. Methods must be devised for tying the expenditure to the educational product--the student or student learning as measured by the credit awarded. This tying process defines the cost unit of any study. Cost units typically used include the student credit hour, the faculty credit hour, the full-time student equivalent, the program, the discipline, and the department. Each unit has strengths and weaknesses. In the selection of the appropriate cost unit to be used, primary consideration should be given to the purposes of the study, analysis procedures and the desired level of refinement.

Until a precise and reliable accounting system is available in a developing educational system, interim analyses and studies must be made from the data-of-record. Such studies provide a basis for immediate decisions and suggestions for the improvement of the existing systems. The study herein reported is of this type.

II. PROCEDURES AND METHODOLOGY

The Junior College Board Unit Cost Study was designed to be used for management decisions by the local institutions. Directions for data collection and its completion, therefore, recommended as a first step that all pertinent data be developed on a course basis. These data were then to be submitted to the Board in a discipline code format to allow for analysis procedures on a state-wide basis.

It must be noted that this was the first time a study of this nature and magnitude was conducted by the Board. Lack of adequate accounting procedures and time pressures prevented eleven of the fifteen initial institutions contacted for participation in this study from performing this initial step of the Unit Cost Study.

Upon examination of the format used in the Unit Cost Study itself, it was determined that the identification of data deemed necessary for this study was not possible. The Unit Cost Study was concerned with all programs conducted in the junior colleges. To meet the immediate objectives of the Board, a detailed identification of expenditures in the occupational programs was not considered necessary.

In contrast, the study being reported herein concentrates on those programs which are occupational in nature.

For the purposes of this study and in the interests of the Division of Vocational and Technical Education, a detailed identification of expenditures is necessary not only for the determination of program costs but for the identification of the variables affecting these costs. A decision was made by the project staff not to use the data reported in the Unit Cost Study in view of the following reporting procedures used in that study:

General

(1) expenditures, when identified at the course level, were combined and included in a discipline code format.

(2) all supporting expenditures such as supplies, capital outlay, travel and contractual services were combined under one report heading.

(3) in view of the time pressures, consistency on the part of reporting institutions (based upon those colleges contacted) was questionable. Irregularities were identified in the assignment of courses to appropriate discipline codes and the inclusion of equipment expenditures from the Site and Construction Fund.

Captial Outlay

(4) the Unit Cost Study required the inclusion of equipment expenditures incurred in the Educational Fund, and the building fund. Captial expenditures in the form of equipment from the Site and Construction Fund were not to be included, omitting necessary occupational program expenditures from the study.

(5) Capital expenditures incurred in the educational fund were included in the unit cost factor. The inclusion of such expenditures, assigned to the students of a current fiscal year tends to inflate the cost unit for that year.

In the assignment of expenditures to classes and students, it should be noted that the academic year does not coincide with the fiscal year. Classes taught during the summer session preceding the normal academic year are therefore included in both the Junior College Unit Cost Study and this current study.

The Junior College Board Unit Cost Study is of great importance and the "Occupational Detail" section has specific relevance in describing departmental and discipline expenditures necessary to the offering of occupational programs, Therefore, the Occupational Detail section, Schedule I of the Unit Cost Study, was included as Appendix A of the complete Final Report but, has been omitted from this publication.

Its inclusion served a two-fold purpose in that it provided an indication of the departmental expenses by institution on a statewide basis and illustrated the format used in Schedule I of the Unit Cost Study. Great care and restraint must be used in attempting to make comparisons either among institutions or among programs within an institution due to the previously cited limitations. In addition, since most institutions were in the process of initiating new programs, they often had a large expenditure for equipment and a comparatively low enrollment in new programs. Others were adding additional equipment for the second year of program operation.

Selected Institutions

Having determined the need for the specific identification of expenditures incurred in the offering of occupational programs, a selection procedure was developed to obtain necessary data from a limited number (6) of institutions. The use of a larger sample was not possible in view of the time limitation of this study.

Institutions were selected in view of their geographic location, size, breadth of vocational offerings, and availability of data. While some difficulty was experienced in selecting institutions meeting all four criteria, a heterogeneous sample has been provided. The fourth criterion, availability of data, needs further discussion. Approximately fifteen institutions were contacted to explore the possibility of obtaining data on a course basis. Of these institutions, four had maintained records identifying the expenditures which had been assigned to each course. Two additional institutions were identified with data available at the discipline level and sufficient records allowing for the identification of support expenditures. These two institutions also had available a listing of courses assigned to each discipline.

The Student Credit Hour

The calculations necessary for determining course and program costs in this study have been based upon the student credit hour. This factor is the product of the number of students in each class multiplied by the credit hours for which the course is offered. As a widely used base of comparison, particular attention should be directed to its advantages and disadvantages.

Advantages

(1) It is a means of assigning expenditures to the educational product.

(2) It is held to be the finest refinement to which expenditures may be assigned.

(3) It allows for the comparison of courses which are offered for varying amounts of credit.

(4) It provides for a general indication of enrollment and permits the consideration of enrollment in the assignment of support costs.

(5) It is easily converted from quarter hours to semester hours.

(6) It provides a standard unit of comparison within and among institutions.

(7) It allows for the assignment of all institutional costs according to the educational product.

Disadvantages

(1) The amount of student credit hours produced will differ according to whether the initial, mid-term, or final enrollments are used.

(2) Course enrollment can only be obtained if all sections of a particular course and the credit for which that course is offered is known.

(3) The student credit hour represents the actual enrollment and does not consider the designed enrollment of a particular class or institution.

(4) The cost per student credit hour will vary as enrollments change.

(5) Procedures used in assigning expenditures to student credit hours result in "average" costs per student credit hour.

(6) An indication of quality or the nature of the instructional program cannot be gained from costs assigned to the student credit hour.

Regardless of the inherent advantages and disadvantages of the student credit hour, it does lend itself to institutional cost-accounting. For example, a college has spent so many dollars and has generated so many student credit hours. All expenditures may be accounted for by dividing the student credit hours generated into the total expenditures of the institution. The case for use of the student credit hour may also be strengthened in that current state reimbursement procedures are based upon it.

III. THE IDENTIFICATION AND ASSIGNMENT OF EXPENDITURES

Expenditures are directly related to the needs of the instructional program. As previously discussed, however, accounting procedures do not record the course or student need for which the expenditure has been incurred. Current accounting procedures charge some department or discipline budget; some type of prorating of these charges among the courses taught within that discipline or department must then be made. The process of determining course or program costs becomes one of identifying expenditures at the department or discipline level and then assigning (or prorating) these identified expenditures to the appropriate course and student credit hours for which they were incurred.

In this study, expenditures were identified at three levels; the course, the department or discipline, and the institution. Regardless of the level of identification, a similar assignment procedure has been used to determine the cost per student credit hour.

One exception may be noted in the case of salary assignments. Methods have been developed by the institutions to assign a portion of each instructor's salary to each course comprising his teaching load. This salary assignment was then prorated to the student credit hours of that course. In the case of identified departmental support expenditures and institutional support expenditures the identified amounts were prorated directly to student credit hours on an equal basis. The following sections describe expenditure identification and assignment.

Course Expenditure Identification

The only expenditure which could be assigned directly at the course level was that of salary. Salary expenditures were obtained from each institution on a course basis with the exceptions of institutions E and F, which provided salary data on a discipline basis.

A difference in procedures, however, across reporting institutions was noted in the assignment of direct and indirect salaries. Two methods were basically used; (1) percent of faculty effort and (2) credit hour load. In some cases a combination of these methods has been used in the assignment of salaries.

The faculty effort procedure identified all responsibilities of the instructor and the percentages of time devoted to them. These percentages were then applied to the total salary of the instructor, yielding the expenditure for any given activity.

The credit hour assignment procedure reserves a certain percent of salary for non-teaching responsibilities and assigns the remaining salary to instruction through the ratio formed by the credit hours of each course to the total credit hour teaching load of the instructor.

In some cases instructional assignments other than teaching are determined in dollar amounts. The remaining instructional salary is then assigned to courses taught on the basis of credit hours generated. These variations are due to the procedures adopted by each community college and are a limitation in the use of existing data.

In the case of part-time, evening, or regular faculty teaching on an overload basis, fixed dollar amounts for the class were identified in some cases and used where possible. Contact hours or credit hours may also be used in determining this amount.

Course Expenditure Assignment

Once direct salary for a course has been identified through the above procedure, it is divided by the number of student credit hours of that course to provide a cost per student credit hour. Student credit hours per course have previously been identified as the product of the number of students in a course multiplied by the amount of credit for which the course is offered.

Departmental Support Expenditure Identification

Departmental support expenditures include: administrative salaries, in-direct salaries, contractual services, travel, supplies, and capital expenditures. These expenditures have been identified at either the discipline or the department levels according to the accounting procedures in use at each of the institutions.

Departmental Support Expenditure Assignment

Departmental support expenditures were assigned on the basis of the student credit hour. The student credit hours of all courses comprising a discipline or department (dependent upon the level of expenditure identification) were totaled and divided into the identified expenditures.

For example, if a total of three thousand student credit hours were offered by the department of agriculture which had incurred six thousand dollars in supporting expenditures, the supporting expenditures ($6,000.00) were divided by the student credit hours (3,000) and the assignment per student credit hour of two dollars was obtained.

Institutional Expenditure Identification

Expenditures for such services as general administration, learning resource center, operation and maintenance of physical facilities, etc. are typically assigned to the institution. Such expenditures were identified from the year-end audited report of each institution.

In a detailed cost-analysis study a much more precise identification of costs according to purpose would be necessary. Some programs actually require a much higher expenditure for both initial costs and operation. Some courses or programs may make extensive use of specialized facilities, such as the learning resource center, while others may make very little use of the same facility and associated personnel. Other programs may require sophisticated environmental controls or extensive space and high maintenance costs. Such differential costs would have to be taken into account to determine actual costs of each program. A detailed study could determine the appropriate ratios to be used on a continuing basis.

Institutional Expenditure Assignment

The total of all expenditures incurred at the institutional level was divided by the total student credit hours generated at the institution, providing the institutional allocation per student credit hour.

Cost per Student Credit Hour

The sum of the course assignment per student credit hour, the departmental assignment per student credit hour, and the institutional allocation per student credit hour provides the average total cost per student credit hour for any course. A listing of such costs for each course was provided for institutions A through D in the final report of this study. Since course data were not available for institutions E and F a similar listing was determined on a discipline level.

IV. PROGRAM COSTS

The previous section (III. The Identification and assignment of expenditures) has described the identification of expenditures and their assignment on a student credit hour basis. These student credit hour costs will now be used to provide course costs which will in turn be used to provide program costs.

All program costs determined in this study have been based upon course listings for each program provided in the catalog of each of the selected colleges. Most of the occupational programs allow for few electives. In the case where the electives have been identified, the average cost per student credit hour of the department offering the program has been used as the base of assigning costs for the electives.

The course composition of the liberal arts programs varies from one institution to another. In general, the liberal arts program contained course work in the humanities, mathematics, physical science, biological science, social science, and foreign language. A listing of the courses upon which the cost of the liberal arts program has been based, is provided in the Program Cost Detail section for each institution. The costs for electives in the liberal arts program have been based on the average cost per student credit hour of the required courses.

Two different program costs based upon fiscal 1968-69 data were determined in this study; (1) the average yearly cost per student per program based upon operating expenditures and (2) the average yearly cost per student per program based upon all institutional expenditures.

Capital outlay, regardless of whether it was incurred at the department or institutional level, computer rental, and facility rental charges have not been included in the average yearly cost per student per program based upon operating expenditures but have been included in the average yearly cost per student per program based upon all institutional expenditures. Operating expenditures include all salary, supplies, travel, and other costs expected to recur on a yearly basis.

Average Yearly Cost per Student per Program Based Upon Operating Expenditures Only

A worksheet was developed for each program offered by the selected institutions. The worksheet contained the name, number and credit hours of each course required to complete selected occupational programs and the typical liberal arts program as listed in the college catalog. Columns were provided to enter the student credit hour costs for each course. The student credit hour costs for each course were multiplied by the number of credit hours for which the course was offered, providing the average cost per student in that course. These course costs per student were then summed to provide the average cost for one student to complete the program as listed in the catalog. Yearly costs are also provided for the first and second years of the associate degree programs. The average program cost per year was then divided by the number of years necessary for the completion of the program to provide the average yearly program cost per student.

The average yearly cost per student has been used to calculate the cost differential between the various occupational programs and the liberal arts and science program. Each cost differential was obtained by dividing the average yearly cost per student of the liberal arts program into the average yearly cost per student of each educational program offered at the selected institutions. It should be noted that this discussion has been confined to the determination of program costs and cost differentials based upon operational expenditures.

Average Yearly Cost per Student per Program Based Upon the Total Expenditures of the Institution

This program cost has been provided as an indication of the average total program cost based on all institutional expenditures. It should be noted that the inclusion of capital expenditures detracts from the meaningfulness of this cost figure as such expenditures fluctuate yearly dependent upon the needs of various programs and available resources. In general, capital expenditures tend to inflate the total program cost during the initial years of operation, but have comparatively little effect upon total program costs of established curricula. Specifically, the average yearly program cost per student is based upon: (1) the average yearly cost per program per student based upon operating expenditures, (2) the average yearly departmental capital outlay expenditure per student per program for the department offering the program, (3) other department capital outlay assignments computed from the capital outlay expenditures assigned to the other departments providing instruction to the program and (4) the remaining institutional expenditures including capital outlay, building rental and interest on indebtedness.

The determination of average yearly costs per student per program based upon operating expenditures has been discussed in the previous section. The following sections will discuss the determination of the average yearly departmental capital outlay assignments and remaining institutional expenditures.

Department Capital Outlay Expenditures

The departmental capital outlay expenditure assignment was determined from the identified capital expenditures (equipment costs) of the department and the student credit hours assigned to that department. The total capital expenditures of the department divided by the total student credit hours of the department provided the capital expenditures assignment per student credit hour.

The amount of student credit hours in each program offered by the department were multiplied by the departmental cost per student credit hour. This product was identified as the average yearly departmental capital outlay cost per student in the program.

Other Department Capital Outlay Expenditures

Other department capital outlay expenditures refer to the equipment and furniture costs incurred by departments other than the department offering the program.

The calculation of other department capital outlay costs per student credit hour was performed in basically the same manner as discussed in the previous section. Total expenditures of each department were divided by the total student credit hours of that department providing the capital outlay assignment per student credit hour. The amount of student credit hours for each department in the program was multiplied by the appropriate department capital outlay assignments per student credit hour. These assignments were then summed for each program providing a total for other department capital outlay assignments.

Remaining Institutional Expenditures

All remaining institutional expenditures (building rental, capital outlay, interest) were then divided by the student credit hours generated by the institution providing the remaining institutional assignment per student credit hour. This assignment was then multiplied by the student credit hours of each program providing the average institutional expenditure per student per program.

V. ORGANIZATION AND FORMAT FOR CHAPTERS II THROUGH VII

This Section has been provided to describe the organization of the various sections within Chapter II through VII, each Chapter describes one of the six selected institutions. Each Chapter initially contained six sections.

Section one of each Chapter presents descriptive information concerning the community college. Section two provides a summary of all programs offered at the institution. Section three presents the cost details by course and year for each program offered. Section four shows the cost per course. Section five presents the identification of expenditures at the department or discipline level and the allocation per student credit hour of those expenditures. Section six shows the institutional level expenditure and the allocation of those expenditures to each student credit hour across all courses and programs within the institution. Also shown are institutional level expenditures not included in the calculation of operational costs. Sections four and five were calculated for each institution and included in the full Final Report and were used as a basis for data in this publication. In the interest of space these sections have been omitted. Descriptions of the process used in determining the costs are included.

The following describes in more detail the information presented in the various sections of each Chapter.

Introduction

This section briefly describes each institution and notes any variances in the obtained data. A brief description is also provided describing the range of occupational program costs and their comparison with the typical liberal arts program of the institution.

Summary of Average Program Costs and Cost Differentials

The Chapter provided for each college contains a program summary page identifying the programs for which average yearly costs per student per program, cost differentials, average yearly departmental outlay per program and average yearly costs per student per program based upon all institutional expenditures have been provided. An elaboration of the headings used is provided in the following:

> Program - The catalog for each institution lists the required courses (and electives) for which a degree or a certificate is awarded in various specialty areas. Each complete listing of such courses leading to a degree or certificate is termed a program.
>
> Average Yearly Cost Per Student Per Program, Operating Expenditures - Expenditures of a recurring nature have been assigned to the student credit hours of each course. The resulting cost per student credit hour of each course has been multiplied by the amount of credit for which that course is offered providing the average cost per student in that course. This procedure has been performed for all courses offered by the institution. Appropriate course costs were then entered for each course of a given program. Subtotals of costs for the first and second years are given. The total of all course costs of the program divided by the number of years needed for the completion of a program (certificate - one year, associate degree - two years) provides the average yearly cost per student per program based upon operating expenditures.
>
> Cost Differential - The cost differential has been provided to compare the costs of various occupation programs with that of the liberal arts program. The cost differential is the quotient obtained by dividing the average yearly program cost for a given occupational program by the average yearly program cost for a liberal arts program.
>
> Average Yearly Department Capital Outlay - This heading refers to the identification of capital expenditures by department and their assignment to programs offered by that department.
>
> The procedures used in this study allowed for the identification of capital expenditures and student credit hours on a departmental basis. These departmental expenditures were then divided by the total number of student credit

hours generated by each department providing a cost per student credit hour. The resultant cost per student credit hour was then multiplied by the number of student credit hours granted in the program. This product results in the average yearly department capital outlay assigned to a program for its share of the capital expenditures incurred by the department offering the program.

While department capital outlay per student credit hour is not listed in any of the provided tables, it may be determined by dividing the capital outlay of each department by the number of student credit hours generated by that department. The data necessary for such calculation has been provided in the Department Expenditure Identification Section of each institution.

Average Yearly Total Program Cost Per Student (Total Expenditures)

The average cost per student per program based upon total institutional expenditures is based on the following: 1) the average yearly cost per student per program based upon operating expenditures, plus, 2) the average yearly department capital outlay expenditure per student per program, plus, 3) capital outlay assignments of departments other than the department offering the program prorated on courses provided to the program, plus, 4) the allocated remaining institutional level expenditures including capital outlay, building rental, and interest on indebtedness.

Institutional level expenditures are those which had not been included in any departmental allocation. The total of such costs was divided by the number of student credit hours generated by the institution providing the cost per student credit hour for these expenditures. The amount of student credit hours for which each program was offered were then multiplied by this cost per student credit hour providing the institutional assignment to each program.

The total of all previously described costs provides the average yearly cost per student per program based upon all institutional expenditures.

Institution Allocation per Student Credit Hour - The following list provides the institutional allocation per student credit hour for each of the colleges. The "Operating Expenditure" heading identifies the institutional allocation included in course costs and average yearly costs per student per program based upon operating costs. The "Remaining Expenditures" heading identifies the institutional allocation included in the average yearly cost per student per program based upon total institutional expenditure. Remaining expenditures include capital outlay assigned to the institution, interest on indebtedness, etc.

Institution Allocation Per Student Credit Hour

Institution	Operating Expenditures	Remaining Expenditures
A	10.13	4.13
B	8.38	3.78
C	11.39	3.81
D	14.31	2.98
E	14.65	7.40
F	9.65	6.83

Program Cost Detail by Course and Year

The program cost detail section of Chapter II through VII provides pertinent information concerning the development of costs for each program. The first page of this section contains the title "Program Cost Detail by Course and Year" and the program cost for the recommended liberal arts program at that college. Each following page of the section identifies the college and a program to which the data pertain. The headings across the table identify the course name and number, credit hours for which the course is offered, and the course cost per student. In addition, totals of course costs are provided for the average first year cost per student, the average second year cost per student, the average program cost per student, the average yearly cost per student and the cost differential. (Since the average yearly cost of the liberal arts program has been used as a base for calculating cost differentials, it is equal to "1".)

The following sections are used to describe the headings identifying the data provided in these tables.

Course Name and Number - This heading indicates the courses, including electives, and their numbers necessary for the completion of a program, as listed in the college catalog. In some cases options are available to the student as in the case of Social Sciences or Mathematics. Areas such as History indicate several course numbers describing the options available to the student. In some instances, understandably in the case of electives, a course number has not been provided.

Credit Hours - The credit hour heading identifies the amount of credit hours for which each course is offered. In some instances, particularly in the case of electives, a range of credit hours has been indicated.

The hours shown in this column were taken from each of the college catalogs for 1968-69.

Course Cost per Student - The dollar amount identified under this heading indicates the average cost for one student completing the course. This cost has been determined by multiplying the cost per student credit hour assigned to the course by the amount of credit for which the course is offered. Averaging techniques were used to provide course costs in the case of insufficient data or electives. In such cases the average cost per student credit hour of the department offering the program was used to determine the course cost. Such average costs are identified by an asterisk.

In the case of electives which could have been taken for varying amount of credits, a range of cost has been provided. These costs are listed in the "Course Cost per Student Column" with the lower cost appearing first followed by a dash and the higher cost listed immediately beneath as illustrated in the following example.

Electives	Credit Hours	Course Costs
	2-3	64.24 - 79.86

Average First Year Cost per Student - The average first year cost per student is the total of all course costs for courses to be taken during the first year of the program as identified in the college catalog.

Average Second Year Cost per Student - The average second year cost per student is the total of all course costs for courses to be taken during the second year of the program as identified in the college catalog.

Average Program Cost per Student - The average program cost per student is the total cost for all courses which form the program. In some cases a range of average program costs per student have been provided reflecting the varying amounts of credit necessary to complete the program.

Average Yearly Cost per Student - The average yearly cost per student is the quotient obtained in dividing the average program cost per student by the number of years necessary to complete the program. In the case of certificate, or one year, programs the average program cost per student is the same as the average first year cost per student.

Cost differential - The cost differential is the quotient obtained by dividing the average yearly cost per student of the liberal arts program into the average yearly cost per student of the occupational program.

Course Cost Listing

A course cost listing has been provided for four of the institutions (A through D) and a discipline code listing has been provided for the remaining two institutions (E and F). The headings discussed in this section apply to both course and discipline listings.

Course or Discipline - This column verbally and/or numerically describes the course or discipline to which data in this table have been assigned. Verbal course descriptions have been provided for institution A while numerical coding has been assigned to institution B. The courses for institution B have been grouped within each department and have been listed in ascending numerical order. Insitutions C and D parallel the format used to present the course cost listing of institution B. Since the data obtained from institutions E and F were available only on a discipline basis, a discipline listing has been provided in lieu of the course listing provided for institutions A through D. The disciplines are verbally described and grouped within departments.

Credit Hours - The hours of credit for which a course is offered. This unit was taken from the 1968-69 catalog of each institution.

Student Credit Hours - Student credit hours have been previously identified as the product of students in a given course multiplied by the amount of credit for which a course is offered. This column refers to the total student credit hours generated by a particular course or discipline during 1968-69. In some cases, there is a discrepancy between the credit for the course and the total student credit hours awarded in the course. The totals were taken from the records of each college.

Direct Salary - The direct salary column refers to the salary assigned to a course or discipline for direct teaching responsibilities. Counseling, advisement, departmental research, or other instructional obligations are not included in this column.

Salary per Student Credit Hour - Salary per student credit hour was obtained by dividing the amount identified under the "Direct Salary" heading by the total identified student credit hours awarded in the course or discipline. It is important to note that only direct salary is indicated in this figure.

Total Cost per Student Credit Hour - The total cost per student credit hour column identifies the cost per student credit hour based upon operational expenditures. This cost includes the direct salary assignment per student credit hour, the department or discipline assignment per student credit hour, and the institutional allocation per student credit hour. It must be noted that only continuing operating expenditures have been included in the determination of this cost. Capital outlay, and expenditures such as computer rental and facility rental ordinarily considered operating expenses have not been included in the determination of this cost.

Department Total - A total of each column has been provided at the departmental or discipline level. This total is particularly useful in the identification of total student credit hours and the total direct salary of the department or discipline. Average salary per student credit hour and average cost per student credit hour have also been provided and are useful in comparing various departments on an average basis.

Departmental Expenditure Identification

A listing has been provided for each institution identifying support expenditures assigned at the department or discipline level. Where possible the more refined discipline listing has been provided. The listing includes all supportive expenditures such as contractual services, supplies, travel, capital outlay, and administrative or supportive salaries. In some cases, it was not possible to directly identify these catagories for all departments at each institution. This was particularly true in the case of contractual services, travel, and research and administrative salaries. Columns have also been provided identifying the total department support costs, total department student credit hours, and the department costs determined assignment per student credit hour. The following sections briefly describe the headings used in this table.

Area - Listed under this heading are the departments and/or disciplines for which various supporting costs have been identified. Departments are listed in alphabetical order with disciplines listed within each department.

Supplies - Supplies refer to expendable items, usually costing less than $25 per unit which are bought on a yearly basis. Included in the supply category are pencils, paper, erasers, small hand tools, metal supplies, expendable electronic components, etc.

Travel - The travel column identifies monies reimbursed to instructional personnel for travel necessary to, or a part of, regular institutional responsibilities. The travel expenditures include reimbursement for trips to conventions, professional meetings, or the teaching of off campus classes. In some cases such identification was possible at the departmental level while in others travel could only be identified at the institutional level.

Capital Outlay - Capital outlay refers to the equipment expenditures incurred by each department. This column includes equipment expenditures from both the education fund and the site and construction fund. Facility expenditures necessary to the instructional program of a given department are not included in this column.

Other - This column has been used to identify expenditures not elsewhere classified in the headings of this table. Research, administrative, and counseling salaries with a department which could not be separately identified are provided in this column.

Total Department Assignment - This column represents the total of all supporting costs. As such it includes supplies, travel, contractual services, indirect salaries, departmental administrative salaries, and other.

Department Credit Hours - This column identifies the student credit hours generated by each department.

Department Cost (Assigned) - This column identifies the quotient obtained in dividing the total department support expenditures by the total department student credit hours. As such, this column indicates the dollar amount assigned to each student credit hour generated by that department.

Institutional Expenditures by Function

This table lists the functions identified in the year-end audited report of each institution. For each function two categories have been provided; included and not included, to identify those expenditures which have been included and excluded from the calculation of average costs per student per program based upon operational expenditures. Only "included expenditures" have been used in the calculation of operational program costs while all expenditures (total of included and not included columns) have been used to calculate the average yearly cost per student per program based upon all institutional expenditures.

A total has also been provided, by a note, for all department capital outlay expenditures which have been identified. This total has not been included in operational program costs nor is it included in the "not-included" column of this table.

The expenditures listed in this section have also been used to verify the total expenditures used in this study with the year-end audited report of each college.

GLOSSARY OF TERMS

1. Allocation - This term is used to describe the proration of expenditures identified at the institutional level among the total student credit hours generated by the institution. Such expenditures include general administration, the learning resource center, maintenance, etc. which are distributed equally among all student credit hours.

2. Assignment - This term is used to describe the proration of expenditures at the department or discipline level. Such expenditures include supplies, materials, instructional and administrative salaries of the department, etc.

   Assignment should be differentiated from allocation in that the latter is the term used to describe the proration of expenditures identified at the institutional level.

   With the exception of direct salary, assignment refers to the direct proration of identified expenditures among the student credit hours of a particular department or discipline. In the case of direct salary assignment, the gross salary of an instructor is first prorated among the courses he teaches on the basis of percentage of faculty effort or the credit hour ratio. The dollar amount thus identified for each course is then prorated to the student credit hours of that course.

3. Average Program Costs - The average program cost is based upon operating expenditures assigned to each program. A listing of all courses comprising the program as identified in the college catalog is provided for each program. Average per student course costs are then calculated for each course within each program. The total of these average per student course costs results in the average program cost.

4. Average Yearly Program Cost - The average program cost is divided by the number of years necessary to complete the program providing the average yearly program cost.

5. Capital Expenditures - Capital expenditures refer to equipment and facility costs not normally expected to recurr on a continuing basis. Such expenditures are typically expected during the initiation of new programs or the initiation of a new institution. Capital expenditures, in the form of equipment are also, however, incurred on a replacement basis.

6. Cost Differential - The quotient obtained by dividing the average yearly program cost for a given occupational program by the average yearly program cost of a liberal arts program results in the cost differential. Cost Differentials have been calculated separately for each institution and result in a comparison of the various occupational programs as compared to the liberal arts program offered at that institution. The Summary Tables provided in Chapter IX also indicate the average yearly occupational program cost as compared to the liberal arts program cost of each institution and a cost differential based on the average yearly program cost of all occupational programs compared with the average yearly program cost of all liberal arts programs.

7. Credit Hour - The unit of academic credit for which acknowledgement is made by the college. Credit hours are offered on a quarter-hour or semester hour basis. One credit hour on the semester system typically represents one hour of classroom instruction per week for the eighteen week semester. One credit hour, on the quarter-system, requires one hour of instruction per week for the twelve week quarter. A quarter hour is typically equated to two-thirds of a semester hour. For calculations and evaluation purposes, non-credit classes are assigned a credit equivalency.

8. Department - The department is a necessary administrative unit with the responsibility of initiating and offering courses and programs. Other responsibilities assigned to the Department are the scheduling of classes, the procurement of equipment and supplies necessary to the offering of these classes, the development of curriculum materials, student advisement, etc. The Department is typically made up of similar disciplines. (e.g., the disciplines of General Business, Accounting, Typing, Shorthand, would all be included in the Department of Business.)

9. Departmental Capital Outlay Assignment - According to the currently used accounting system, capital outlay expenditures are typically identified at the departmental level. When such expenditures are divided by the student credit hours generated by a particular department, the departmental capital expenditure assignment results.

10. Departmental Supporting Cost Assignment - All expenditures assigned to a department with the exception of direct salary may be termed supporting expenditures. These typically include indirect salary, research salary, advisement, administrative salaries, supplies, materials, contractual services, etc. When these supporting expenditures (not including capital outlay) are divided by the student credit hours generated by a particular department, the supporting department cost per student credit hour results.

11. Designed Enrollment - each classroom or laboratory is typically designed to accommodate a range of student enrollment. This range is dependent upon the nature of the instruction, the size of the classroom facilities, the type and amount of furniture, and the equipment contained within the classroom. In the case of a laboratory situation, a percentage of effective utilization of equipment must be taken into consideration.

12. Discipline - As used for the purposes of this study, a discipline is comprised of all courses similar to content or subject matter. (e.g., all courses in typing, accounting, data processing, and salesmanship.)

13. Discipline Code - The discipline code refers to the numberical coding system assigned to the departments and disciplines used as cost units in the Junior College Board Unit Cost Study. Three codes similar in format have been separately developed for the transfer, occupational and general curricula.

The discipline code used to identify transfer disciplines was developed by the Board of Higher Education. It has been applied to the Baccaulareate disciplines in the junior college to allow for a comparison of costs between the junior colleges and other institutions of higher learning.

The discipline code used to identify general studies disciplines was developed by the Junior College Board. General studies programs refer to remedial and foundations programs not offered the universities. The lack of an existing discipline code to identify the general studies disciplines required the development of a new code.

Since occupational programs are offered by Junior Colleges but not universities, provision for identifying occupational disciplines was not made by the Board of Higher Education. The discipline code adopted by the Junior College Board to identify occupational disciplines has been developed by the U. S. Office of Education and used by the Division of Vocational and Technical Education.

14. Operating Expenditures - Expenditures which are normally expected to recurr on a yearly basis are termed operating expenditures. Salaries, supplies, materials, travel and some contractual services and rentals are commonly included within this classification.

15. Program - The courses required by a college which lead to the awarding of a degree or certificate in a specific area are called a program. Programs may vary from one to two years in length and are offered in the general, occupational and transfer areas by the Junior Colleges. The specific courses required for each program are listed in the catalog of each college.

16. Student Credit Hour - Student credit hours are dependent upon the enrollment of each course and the amount of credit for which the course is offered. The product obtained by multiplying the credit hours for which a course is offered by the enrollment of the course provides the student credit hours of that course. (e.g., a class offered for three credit hours and having an enrollment of twenty students yields 60 student credit hours).

CHAPTER II

COMMUNITY COLLEGE A

Community College A is located in an urban area and has been in existence for many years. Prior to, and during, the period of the base data (fiscal 1968-69), the college was housed in facilities shared with the local high school. The rental paid by the college to the local Board of Education for the use of laboratory and classroom space included charges for the operation and maintenance of the facility. Equipment required for the teaching of laboratory classes was also provided for college use as part of the rental agreement.

The equipment expenditures identified in the Department Expenditure Identification section of this Chapter were incurred for equipment to be used at the new temporary campus of the college. Though the actual use of this equipment would not take place until the following year, these expenditures have been identified in this study and included in the determination of the average cost per student per program based upon the total expenditures of the institution since they were incurred during fiscal 1968-69.

The assignment of salary was based upon the credit hour ratio. Fifteen per cent of each instructor's salary was assigned to indirect teaching responsibilities and identified as a department expenditure. The remaining eighty-five percent of each instructor's salary was identified for direct teaching and assigned to the courses taught by the instructor, using the credit hour ratio.

The average cost per student per program based upon operating expenditures has been determined at $1,022.78 for the liberal arts program at this institution. In comparison, the cost for occupational programs determined in the same manner range from a low of $888.11 for a program in general business to $1,659.76 for a program in automotive technology. Of the eleven occupational programs for which such operating costs were determined, seven were lower in cost than the liberal arts program while the cost of four occupational programs were identified as being higher. Though accurate supporting data are lacking, the relatively low average cost per student for the occupational programs as compared to the liberal arts program may be due to the shared facility arrangement.

The reader is referred to Section V of Chapter I for information describing the nature, organization and format of the data presented in chapters II through VII. Chapter IX presents a summary and discussion.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College A

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts & Sci.	1,022.78	1.00		1,158.99
Accounting	1,507.56	.90	41.60	1,080.55
Agricultural Supply	915.27	.90	27.14	1,082.93
Auto Technology	1,659.76	1.62	97.00	1,911.87
Data Processing	943.74	.92	52.00	1,140.60
Bus. Finance Prog.	904.20	.88	38.48	1,079.42
Bus. General Prog.	903.85	.86	39.52	1,070.60
Bus. Marketing	926.69	.90	44.72	1,112.51
Bus. Secr. Science	1,010.18	.99	39.52	1,194.70
Electrical Tech.	1,615.41	1.58	80.29	1,858.91
Home Economics	1,167.97	1.14	.63	1,324.16
Mechanics & Machine Design Tech.	1,507.56	1.47	110.38	1,773.03

PROGRAM COST DETAIL BY COURSE AND YEAR

Community College A

Liberal Arts & Sciences

Course Name & Number		Credit Hours	Course Cost per Student
1st year:			
Biological Science		5	128.25
Biological Science		5	128.25
English	101	3	80.76
English	102	3	82.95
History	105	4	95.64
History	106	4	104.80
Physical Education	101	1	30.50
Physical Education	102	1	30.50
Average 1st year cost per student			995.84
2nd year:			
English	105	4	100.80
English	106	4	129.96
History (Soc. Sci)	103	3-4	66.18 - 88.24
History	104	3	70.62
Language		4	158.48
Language		4	158.48
Physical Science		3-5	109.83 - 183.05
Physical Science		3-5	109.83 - 180.05
Physical Education	103	1	333.84
Physical Education	104	1	28.96
Average 2nd year cost per student			966.98 - 1,132.48
Average Program Cost per student			2,045.57
Average yearly cost per student			1,022.78
Cost Differential			1.00

Community College A

Accounting Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	73.05
Accounting	102	3	84.30
Economics	103	3	75.93
Economics	104	3	83.70
English-Rhetoric	101	3	85.02
English-Rhetoric	102	3	82.95
Principles of Speech	101	3	85.02
Humanities-elective		2-4	48.64 - 97.28*
Math-elective		3-5	94.29 -157.15*
Physical Education	101	1	33.15
Physical Education	102	1	33.15

Average 1st year Cost per Student: $903.19-1,014.69

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Accounting	103	3	73.77
Accounting	104 or 105	3	93.96
Business Law	101	3	75.09
Economics	105	3	111.06
Social Science-elect.		3-4	72.96 - 97.28*
Elective		6-7	155.88 -181.86*
Elective		9-10	233.82 -259.80*
Physical Education	103	1	39.21
Physical Education	104	1	28.96

Average 2nd year Cost per Student: $1,665.52

Average Program Cost per Student: $3,015.12

Average Yearly Cost per Student: $1,507.56

Cost Differential: 1.47

Community College A

Agricultural Supply Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Communicative Skills	140	3	86.22
Communicative Skills	141	3	94.05
Introduction to Agriculture Supply	121	3	86.46
Chemistry of Agriculture	127	3	75.78
Agricultural Economics	103	3	109.56
Agricultural Computations	129	2	62.36
Survey of Political, Social, & Economic Probs.	101	4	96.36
Principles of Feeding	102	3	71.01
Electives		6	239.91*
Physical Education	101	1	33.15
Physical Education	102	1	33.15

Average 1st year cost per student - $893.96

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Agri. Chemicals & Supply	123	3	79.05
Agri. Business Mgmt.	124	3	115.26
Crop Production	105	4	104.56
Salesmanship	101	3	92.04
Agriculture Seminar	130	6	118.92
Agri. Business Experience Program	134	12	260.88
Electives		3-6	84.45-168.90
Physical Education	103	1	39.21

Average 2nd yr. cost per student-- $894.37-978.82

Average Program cost per student-- $1,788.33-1,872.78

Average yearly cost per student-- $894.16-936.39

Cost Differential -- .87 - .92

Community College A

Automotive Technology Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Auto Tech-Chassis	101	4	143.28
Auto Tech-Internal Combustion Engines	102	4	216.24
Technical Mathematics	109	3	96.96
Technical Mathematics	110	3	127.14
Technical Physics	103	4	260.88
Technical Physics	104	4	274.84
Slide Rule	101	1	52.06
Electronics	105	4	182.96
English-Rhetoric	101	3	80.76
Technical Report Writing	112	3	110.46
Physical Education	101	1	33.15
Physical Education	102	1	33.15

Average 1st year Cost per Student - $1,709.96

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Automotive Technology	103	4	298.64
Automotive Technology	104	3	279.36
Advanced Laboratory	105	3	147.12*
Automotive Tech.	106	3	243.69
Technical Drafting	101	4	164.64
Social Science	101	4	79.00
Social Science	102	4	102.56
Psychology-Industrial	106	3	65.43
Economics	103	3	95.93
Speech-Principles of	101	3	85.02
Physical Education	103	1	39.21
Physical Education	104	1	28.96

Average 2nd year Cost per Student - $1,609.56

Average Program cost per student - $3,319.52

Average yearly cost per student - $1,659.76

Cost Differential - 1.62

Community College A

Business - Data Processing Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Data Processing	101	3	86.76
Data Processing	102	4	96.52
Data Processing	104	3	66.00
Data Processing	106	4	83.84
Accounting	101	3	73.05
Accounting	102	3	71.61
Mathematics		3	94.29*
Mathematics		3	94.29*
English-Rhetoric	101	3	80.76
English-Rhetoric	102	3	82.95
Physical Education	101	1	27.73*
Physical Education	102	1	30.50*

Average 1st yr. Cost per Student - $888.30

2nd year:			
Data Processing	107	4	120.84
Data Processing	109	4	114.48
Data Processing	110	4	84.92
Data Processing	111	3	63.75
Data Processing	112	3	77.94*
Economics	102	3	107.01
Economics	103	3	75.93
Economics	105	3	111.06
Accounting	104	3	77.94
Social Science	101	4	102.50
Physical Education	103	1	33.84*
Physical Education	104	1	28.96

Average 2nd year Cost per Student: $999.17

Average Program Cost per Student: $1,887.47

Average Yearly Cost per Student: $943.74

Cost Differential: .92

Community College A

Business - Finance Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	76.89
Accounting	102	3	71.61
Economics	102	3	71.79
Speech-Principles of	101	3	85.02
English-Rhetoric	101	3	80.76
English-Rhetoric	102	3	71.61
Mathematics-elective		3-5	94.29 - 157.15*
Science-elective		5	128.25*
Electives		3-4	77.85 - 103.80*
Electives		2-3	51.90 - 77.85*
Physical Education	101	1	27.73*
Physical Education	102	1	30.50*
Average 1 yr. Cost per Student:			$879.54 - 994.30
2nd year:			
Economics	103	3	75.93
Economics	104	3	83.70
Business Law	101	3	75.09
Insurance	101	3	77.94*
Real Estate	101	3	70.17
Social Science-elective		3-4	72.96 - 97.28*
Humanities-elective		2-3	48.64 - 72.96*
Elective		3	77.94*
Elective		3-4	77.94 - 103.92*
Physical Education	103	1	33.84*
Physical Education	104	1	28.96

Average 2nd year Cost per Student:	$834.17 - 908.79
Average Program Cost per Student:	$1,713.71 - 1,903.09
Average Yearly Cost per Student:	$856.86 - 951.54
Cost Differential:	.84 - .93

Community College A

Business - General Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	76.89
Accounting	102	3	71.61
Economics	102	3	71.79
English-Rhetoric	101	3	80.76
English-Rhetoric	102	3	82.95
Speech-Principles of	101	3	85.02
Math-elective		3-5	94.29 - 157.15*
Science-elective		5	128.25*
Elective		3	77.94*
Elective		2	51.96*
Physical Education	101	1	27.73
Physical Education	102	1	30.50
Average 1st year Cost per Student:			$879.69 - 942.55
2nd year:			
Business Communications	111	3	85.53
Business Law	101	3	74.70
Business Law	102	3	79.08
Economics	103	3	75.93
Economics	104	3	83.70
Marketing	101	3	76.41
Social Science	101	4	79.00
Psychology	101	4	92.12
Elective		3	77.94*
Elective		3	77.94*
Physical Education	103	1	33.84*
Physical Education	104	1	28.96
Average 2nd year Cost per Student:			$865.15
Average Program Cost per Student:			$1,744.84 - 1,807.70
Average Yearly Cost per Student:			$872.42 - 903.85
Cost Differential:			.85 - .88

Community College A

Business - Marketing Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Economics	102	3	71.61
Economics	103	3	75.93
Salesmanship	101	3	77.94*
Accounting	101	3	76.89
Accounting	102	3	71.61
English-Rhetoric	101	3	80.76
English-Rhetoric	102	3	82.95
Speech-Principles of	101	3	85.02
Math-elective		3-5	94.29 - 157.15*
Elective		3-4	77.94 - 103.92*
Physical Education	101	1	27.73*
Average 1st year cost per student:			$853.17 - 942.01
2nd year:			
Business Communications	111	3	85.53
Business Law	101	3	75.09
Economics	104	3	83.70
Economics	105	3	111.06
Marketing	101	3	76.41
Retailing	107	3	105.12
Advertising	101	3	90.30
Art	108	2	59.60
Science-elective		5	128.25*
Elective		3	77.94*
Physical Education	103	1	33.84*
Physical Education	104	1	28.96
Average 2nd year Cost per Student:			$955.80
Average Program Cost per Student:			$1,808.97 - 1,897.81
Average Yearly Cost per Student:			$904.48 - 948.90
Cost Differential:			.88 - .93

Community College A

Business - Secretarial Science Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Stenography	101	3	79.11
Stenography	102	3	83.31
Typing	101	3	75.36
Typing	102	3	135.42
Economics	102	3	71.79
Economics	103	3	75.93
Egnlish-Rhetoric	101	3	80.76
English-Rhetorica	102	3	82.95
Math-elective		3-5	94.29 - 157.15
Speech-Principles of	101	3	85.02
Physical Education	101	1	22.31
Physical Education	102	1	27.85
Average 1st year cost per student:			$914.10 - 979.96
2nd year:			
Business Communications	111	3	85.53
Business Machines	101	2	77.00
Office Procedures	101	3	97.28
Office Procedures	102	3	81.33
Stenography	103	3	123.00
Stenography	104	3	102.96
Typing	103	3	115.80
Social Science - elective		3-4	72.96 - 97.28*
Humanities-elective		5	121.60*
Science-elective		5	128.25*
Physical Education	103	1	28.48
Physical Education	104	1	28.96
Average 2nd year Cost per Student:			$1,062.67 - 1,086.99
Average Program Cost per Student:			$1,976.77 - 2,063.95
Average Yearly Cost per Student:			$988.38 - 1,031.98
Cost Differential:			.97 - 1.01

Community College A

Electric Technology Program
(1 Year Program)

Course Name and Number		Credit Hours	Couse Cost per Student
1st year:			
Electric Technology	101	4	129.68
Electric Technology	102	4	219.88
Technical Physics	103	4	260.88
Technical Physics	104	4	274.84
Mathematics	111	5	157.15*
Mathematics	102	3	98.76
Slide Rule	101	1	52.06
Technical Drafting	101	4	164.64
English-Rhetoric	101	3	80.76
English-Technical Report Writing	112	3	110.46
Physical Education	101	1	33.15
Physical Education	102	1	33.15

Average Program Cost per Student:	$1,615.41
Cost Differential:	1.58

Community College A

Home Economics - Clerical Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Home Economics	103	3	183.78
Home Economics	102	3	192.42
Home Economics	100	3	126.66
Typing	101	3	75.36
Typing	102	3	135.42
Social Science	101	4	79.00
Social Science	102	4	102.56
English-Rhetoric	101	3	80.76
English-Rhetoric	102	3	82.95
Art	101	3	119.46
Physical Education	101	1	22.31
Physical Education	102	1	27.85

Average 1st year Cost per Student: $1,228.53

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Home Economics	107	3	114.33
Home Economics	106	3	145.05
Home Economics	109	3	115.80
Office Procedures	101	3	117.54
Office Procedures	102	3	81.33
Business Communications	111	3	85.53
Psychology	101	3	117.54
Speech-Principles of	101	3	85.02
Anatomy & Physiology	101	4	84.52
Elective		3	128.73*
Physical Education	103	1	28.48
Physical Education	104	1	28.96

Average 2nd year Cost per Student: $1,107.41

Average Program Cost per Student: $2,335.94

Average Yearly Cost per Student: $1,167.97

Cost Differential: 1.14

Community College A

Mechanical & Machine Design Technology Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Technical Drafting	101	4	164.64
Technical Drafting	102	4	156.40
Technical Math	109	3	96.96
Technical Math	110	3	127.14
Slide Rule	101	1	52.06
Machine Shop	101	4	196.16*
Machine Shop	102	4	196.16*
English-Rhetoric	101	3	80.76
Technical Report Writing	112	3	110.46
Social Science	102	4	102.56
Physical Education	101	1	33.15
Physical Education	102	1	33.15
Average 1st year Cost per Student:			$1,349.60
2nd year:			
Technical Drafting	103	4	175.16
Technical Drafting	104	4	180.84
Technical Drafting	105	3	147.12*
Technical Physics	103	4	262.48
Technical Physics	104	4	274.84
Electronics	105	4	182.96
Technical Mechanics & Strength of Materials	102	2	121.72
Principles of Speech	101	3	85.02
Business Law	101	3	75.09
Psychology	101	4	92.12
Physical Education	103	1	39.21
Average 2nd year Cost per Student:			$1,665.52
Average Program Cost per Student			$3,015.12
Average Yearly Cost per Student:			$1,507.56
Cost Differential:			1.47

Community College A

Institutional Expenditures by Function

Education Fund	Included	Not included
Administration	326,676.40	
Instruction	1,262,494.91	
Health	8,250.00	
Maintenance	1,368.65	
Insurance & Interest	62,217.52	
Evening College	135,372.90	
Summer College	21,738.24	
Athletics	30,097.95	
Other	235.50	
Capital Outlay		135,960.42
Operation & Maintenance	1,526.14	
Fixed Charges	126,834.32	190,151.49
	1,976,812.53	326,111.91

In addition, $57,794.20 have been identified as departmental capital outlay expenditures but have not however been included in operational program costs.

CHAPTER III

COMMUNITY COLLEGE B

Community College B is located in a rural area and is approximately four years old. All facilities housing the college are rented. The rental agreements reflect charges for building use but do not provide for the equipment and furniture necessary for classroom and laboratory teaching. Equipment expenditures for this insitution were identified in both the educational fund and the site and construction fund. Those equipment expenditures identified in the educational fund represent current teaching necessities while those identified in the site and construction fund apply to equipment necessary for the operation of a new campus currently under construction.

The assignment of salary to each course was based upon expended faculty effort. The Faculty Assignment Report Form which lists all activities of the instructor and the percentage of time devoted to each activity was used as the basic source of data. The percentages identified on this form, totaling 100, were then applied to the gross salary of the instructor providing the amount in dollars to be assigned to each activity.

The average cost per student for the liberal arts program based upon operating expenditures has been determined as $987.14. In comparison, similarly determined costs based upon operational expenditures for occupational programs range from a low of $961.00 for the program in child care to a high of $2,030.49 for a one-year program in dental assisting. Of the seventeen occupational programs for which such costs were determined, two were identified as being less costly than the liberal arts program while fifteen of the occupational programs were identified as being more costly.

This institution operated on the quarter hour system and all cost data therefore have been presented based upon quarter hours.

This does not affect the program costs presented but should be taken into account when interpreting the course costs and costs per student credit hour, both of which would be 50% higher if determined on the semester hour.

The reader is referred to Section V of Chapter I for information describing the nature, organization and format of the data presented in chapters II through VII. Chapter IX presents a summary and discussion.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College B

Program	Average Yearly Operating Cost per Student	Cost Differ- ential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts & Sci.	987.14	1.00		1,233.41
Bus. - 2 yr. Accounting	1,219.79	1.24	78.48	1,507.21
Agriculture - Prod. & Management	1,238.20	1.25	119.24	1,562.12
Agriculture & Bus. Supplies	1,230.27	1.25	113.82	1,557.49
Agric. Equip. Tech.	968.18	.98	108.84	1,282.42
Arch. Drafting	1,294.96	1.31	54.40	1,633.70
Auto. Science	1,339.20	1.36	34.88	1,596.62
Bus. - Data Proc.	1,287.95	1.30	691.04	2,231.45
Child Care	961.40	.97		1,173.28
1 yr. Clerical Prog.	1,128.64	1.14	158.72	1,498.76
1 yr. Dental Asstng.	2,030.49	2.07	819.57	3,091.00
Dental Hygiene	1,629.92	1.65	594.59	4,174.26
Electronics	1,326.74	1.34	946.80	2,501.11
Engineer. Drafting Tech.	1,245.02	1.26	38.08	1,559.38
Mid-Management	1,285.55	1.30	187.48	1,695.67
Practial Nursing	1,576.93	1.60		1,819.33
Secretarial Sci.	1,306.88	1.32	174.40	1,683.68
1 yr. Stenographer	1,635.27	1.66	209.28	2,109.63

PROGRAM COST DETAIL BY COURSE AND YEAR

Community College B

Liberal Arts and Sciences Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English	42.120	4	87.72
English	42.121	4	74.76
Literature	42.130	4	65.64
Foreign Language		12	238.32
Laboratory Science		12	362.04
Personal Hygiene		4	56.56
Math	62.130 or		
	62.125	4	68.36
American Nat'l.Gov't.	90.110	4	57.60
Orientation	68.101	1	10.92
Physical Education		3	66.42
Average 1st year cost per student:			$ 1,088.34
2nd year:			
Art	17.250 or		
Music	66.229	4	76.68
English or	42.250	4	69.04
American Literature	42.251	4	77.64
	42.252	4	60.92
Foreign Language	90.133	4	56.56
Foreign Language	90.134	4	62.76
Foreign Language	90.135	4	62.76
Psychology	90.231	4	55.96
Public Speaking	94.131	4	65.32
Physical Education		3	66.42
Average 2nd year cost per student:			$ 885.94
Average Program Cost per student:			1,974.28
Average yearly cost per student:			987.14

Community College B

Business Program -- Two-Year Accounting

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Business Organization	23.142	4	67.80
Communications	42.050	4	62.88
Intro. Data Processing	27.052	4	90.24
Principles of Acctng.	23.150	4	68.64
Principles of Acctng.	23.151	4	73.64
Principles of Acctng.	23.152	4	95.20
Orientation	68.101	1	10.92
Physical Education		3	63.42
Business Correspondence	23.141	4	74.00
Business Math	23.140	4	178.24
Typing	23.110	4	81.08
Typing	23.111	4	79.80
Office Machines	23.212	4	84.84
Public Speaking	94.131	4	65.32
Average 1st year cost per student			$ 1,096.02
2nd year:			
Business Law	23.201	4	65.20
Business Law	23.202	4	185.52
Elective	27.050	4	108.04*
Intermediate Accounting	23.077	4	80.40*
Principles of Economics	90.225	4	101.80
Physical Education		2	42.28
Cost Accounting	23.079	4	77.36
Fed. Income Tax Acctng.	23.078	4	80.40*
Human Relations	90.050	4	63.36
Seminar	23.098	4	139.48
Internship or elective	23.099	12	399.72
Average 2nd year cost per student			1,343.56
Average Program cost per student			2,439.58
Average yearly cost per student			1,219.79
Cost Differential			1.24

Community College B

Agriculture - Production & Management Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Communications	42.050	4	62.88
Communications	42.051	4	62.96
Agricultural Computation	15.062	4	85.04
Animal Husbandry	15.063	4	88.72
Agricultural Economics	15.068	4	70.60
Orientation	68.101	1	10.92
Physical Education		2	48.40
Soil & Fertilizer	15.064	4	84.00
Prin. of Crop Production	15.067	4	79.44
Soils	15.065	4	89.48
Farm Management	15.072	4	112.12
Occ. Experience	15.073	8	248.08
Occ. Experience	15.073	8	248.08
Seminar	15.074	1	15.96
Seminar	15.074A	1	15.96
Average 1st year cost per student			$ 1,322.64
2nd year:			
Human Relations	90.050	4	63.36
Ag. Chem. & Supplies	15.088	4	117.08
Mkt. of Ag. Products	15.096	4	88.56*
Elective		8	177.12*
Physical Education		2	40.40
Feeds & Feeding	15.066	4	77.52
Ag. Production	15.098	4	88.56*
Princ. of Ag. Mech.	15.089	4	88.56*
Farm Management	15.097	4	88.56*
Occ. Explorations	15.073B	8	248.08
Seminar	15.074B	1	15.96
Average 2nd year cost per student			1,143.76*
Average Program cost per student			2,476.40
Average yearly cost per student			1,238.20
Cost Differential			1.25

Community College B

Agricultural & Business Supply Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English	42.050	4	$ 62.88
English	42.051	4	62.96
Agriculture	15.061	4	94.64
Agriculture	15.062	4	85.04
Agriculture	15.063	4	88.72
Orientation	68.101	1	10.92
Physical Education		2	48.80
Agriculture	15.064	4	84.00
Agriculture	15.065	4	89.48
Agriculture	15.066	4	77.52
Agriculture	15.067	5	99.30
Agriculture	15.068	8	141.20
Agriculture	15.070	8	211.36
Agriculture	15.069	1	27.39
Agriculture	15.071	1	165.33

Average 1st year cost/student: $1,349.54

2nd year:			
Human Relations	90.050	4	63.36
Agriculture Economics	15.086	4	97.52
Agricultural Sales	15.087	4	112.40
Agricultural Sales	15.088	4	117.08
Physical Education		2	48.40
Principles of Mgt.	23.084	4	79.52
Ag. Mechanics	15.089	4	88.56
Ag. Retail	15.090	4	119.80
Business Analysis	15.095	4	119.80
Ag. Finance	15.092	3	80.34
Occupational Exploration	15.093	8	147.36
Seminar	15.094	1	36.86

Average 2nd year cost/student: $1,111.00

Average yearly cost per student: $1,230.27

Average Program cost (2 year): $2,460.54

Cost Differential: 1.25

Community College B

Agricultural Equipment Technology Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Communications	42.050	4	62.88
Communications	42.051	4	62.96
Agriculture Occupations	15.050	4	72.56
Agriculture Computations	15.051	4	72.56
Ag. Mechanical Skills	15.052	4	101.64
Physical Education	24.400	2	48.40
Intro. Gas Engineer	15.053	4	69.96
Ag. Welding	15.054	4	60.36
Ignition & Elect. Syst.	15.055	4	69.96
Ag. Tractors	15.056	5	87.45
Occ. Experience	15.057	7	114.87
Occ. Experience	15.059	7	193.27
Ag. Mech. Technology	15.058	1	19.94
Ag. Mech. Technology	15.060	1	20.75
Average 1st year cost per student			$ 1,057.56
2nd year:			
Hydraulics	15.076	4	90.96
Equipment	15.077	4	91.24
Human Relations	80.050	4	63.36
Diesel	15.078	4	78.52
Physical Education		2	48.80
Business Management	23.084	4	80.40
Transmissions	15.079	4	69.56
Painting Farm Machnry.	15.080	2	41.80
Ad. Tractor	15.081	4	72.24
Machine & Parts Supply	15.082	2	41.22
Shop Supervision	15.083	3	60.98
Occ. Ex.	15.084	7	148.89
Seminar	15.085	1	16.83
Average 2nd year cost per student			904.80
Average Program cost per student			1,962.36
Average yearly cost per student			968.18
Cost Differential			.98

Community College B

Architectural Drafting Technology Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Technical Drafting I	35.050	4	98.16
Technical Mathematics	95.053	4	71.36
Technical Mathematics	95.054	4	82.44
Technical Mathematics	95.058	4	85.24
Slide Rule	95.050	4	85.24
Materials of Industry	95.052	4	53.88
Communications	42.050	4	62.88
Architectural Drafting	35.051	4	110.16
Architectural Drafting	35.052	4	114.40
Surveying	35.055	4	101.84
Report Writing	23.055	4	74.92
Technical Illustration	95.051	4	38.80
Technical Physics	95.055	4	108.12
Physical Education		3	72.60
Orientation	68.101	1	10.92
Average 1st year cost per student			$ 1,163.88
2nd year:			
Architectural Drafting	35.076	4	102.84
Arch. Drafting IV	35.077	4	139.64
Arch. Drafting V	35.078	4	134.76
Strength of Materials	95.082	4	74.24
Arch. Construction Codes	95.076	4	91.76
Electronics I	39.050	4	94.68
Architect. Specifications	95.078	4	98.32
Technical Physics	95.057	4	206.64
Human Relations	90.050	4	63.36
Estimating	95.077	4	123.68
Elective		8	223.52
Physical Education		3	72.60
Average 2nd year cost per student			1,426.04
Average Program cost per student			2,589.92
Average yearly cost per student			1,294.96
Cost Differential			1.31

Community College B

Automotive Science Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Technical Math I	95.053	4	71.36
Technical Drafting I	35.050	4	98.16
Automotive Theory	20.050	4	84.68
Automotive Theory	20.052	4	88.64
Automotive Theory	20.054	4	93.20
Automotive Engines	20.051	4	114.56
Orientation	68.101	1	10.92
Physical Education		3	73.20
Communications	42.050	4	62.88
Communications	42.051	4	62.96
Technical Physics I	95.055	4	108.12
Auto Brakes & Chassis	20.058	4	114.48*
Human Relations	90.050	4	63.36
Auto Electricity & Fuel	20.055	4	129.76

Average 1st year cost per student $1,112.08

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Machine Shop	59.050	4	100.40*
Electives		16	457.92*
Automotive Theory	20.076	4	104.32
Automotive Theory	20.078	4	93.68
Automotive Theory	20.080	4	104.48
Auto. Power Training	20.077	4	156.88
Physical Education		3	73.70
Welding	97.050	4	114.48*
Automotive Trans.	20.079	4	199.68
Automotive Diagnostic	20.081	4	161.28

Average 2nd year cost per student 1,566.32

Average Program cost per student 2,678.40

Average yearly cost per student 1,339.20

Cost Differential 1.36

Community College B

Business - Data Processing Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
D. P. Math	27.050	4	108.04*
Intro. Data Processing	27.052	4	102.24
Principles of Accounting	23.150	4	68.64
Principles of Accounting	23.151	4	73.64
Principles of Accounting	23.152	4	95.20
Communications	42.050	4	62.88
Communications	42.051	4	62.96
Orientation	68.101	1	10.92
Physical Education		3	63.42*
Auto. Data Proc.	27.053	4	108.52
Computer Programming	27.054	4	94.92
Data Processing Systems	27.055	4	78.68
Data Procsng. Applications	27.057	4	78.68
Elective (Dept.)		4	108.04*
Average 1st year cost per student			$ 1,116.78
2nd year:			
Bus. Computer Prog.	27.076	4	183.08
Bus. Computer Prog.	27.078	4	239.36
Cost Accounting	23.079	4	77.36
System Design	27.077	4	134.24
System Design	27.079	4	108.00
Report Writing	23.055	4	80.40
Physical Education		2	42.28*
Business Statistics	27.082	4	159.08
Principles of Mgt.	23.084	4	80.40*
Programming Systems	27.080	4	143.68
Data Processing Field Project	27.081	4	95.52
Human Relations	90.050	4	63.36
Principles of Economics	90.254	4	61.36
Average 2nd year cost per student			1,459.12
Average Program cost per Student			2,575.90
Average yearly cost per student			1,287.95
Cost Differential			1.30

Community College B

Child Care Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Communications	42.050	4	62.88
Communications	42.051	4	62.96
Art for Children	20.244	4	99.24*
Social Science	90.110	4	5 .60
Physical Education		3	79.52
Science Elective		4	120.68
Music for Children	66.120	4	77.22
Orientation to Work	51.051	4	88.96
Psychology-Gen.	90.231	4	55.96
Nutrition	51.102	4	83.48
Literature for Children	42.123	4	74.56*
Health Education	48.120	4	56.56

Average 1st year cost per student $920.12

2nd year:			
Psychology-Child	90.232	4	62.24*
Child Development	51.246	4	83.48*
Princ. & Practices of the Nursery School	51.083	4	75.44
Observation & Part.	51.C84	4	82.08*
Physical Education		3	59.64
Family Relations	51.347	4	83.48*
Sociology	90.271	4	58.40
Equip. & Orientation	51.087	4	83.48*
Part. in Nurs. Sch.	51.085	4	82.08*
Part. in Nurs. Sch.	51.086	8	164.16*
Elective		4	82.08*
The Child vs. the Family and Culture	51.088	4	86.12

Average 2nd year cost per student: 1,002.68

Average Program Cost per student: 1,922.80

Average yearly cost per student: 961.40

Cost Differential: .97

Community College B

One Year General Clerical Program

Course Name and Number		Credit Hours	Course Cost per Student
Business Organization	23.142	4	$ 67.80
Typing	23.110	4	81.08
Typing	23.111	4	79.80
Typing	23.112	4	130.88
Communications	42.050	4	62.88
Intro. to Data Processing	27.052	4	90.24
Orientation	68.101	1	10.92
Physical Education		3	59.64
Business Math	23.140	4	178.24
Office Accounting	23.062	4	73.24
Public Speaking	94.131	4	65.32
Filing & Duplicating	23.063	4	80.40*
Human Relations	90.050	4	63.36
Office Machines	23.212	4	84.84

Average yearly cost per student: $1,128.64

Cost Differential: 1.14

Community College B

One Year Dental Assisting Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Dent. Anatomy & Hist.	31.050	4	172.80
Communications	42.050	4	62.88
Dental Materials I	31.051	4	95.00
Dental Materials II	31.053	4	131.80*
Radiology I	31.053	4	88.52
Radiology II	31.054	4	92.60
Pre-Clinical Orientation	31.055	4	146.52
Anatomy & Physiology	31.056	4	131.80*
First Aid	31.057	2	61.36
Office Management	23.089	4	94.60
Microbiology & Steril.	31.058	4	174.00
Clinical Assisting I	31.059	4	182.88
Clinical Assisting II	31.060	4	131.80*
Hospital Procedures	31.061	1	32.95*
General Hygiene & Nutri.	31.062	2	65.90*
Professionalism & Ethics	31.063	1	145.69
Dental Health Education	31.064	1	32.95*
Applied Dental Psych.	31.065	4	186.44
Average student cost per year			$ 2,030.49
Cost Differential			2.07

Community College B

Dental Hygiene Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Dental Anatomy	31.076	4	$110.08
Pre-Hygiene Orientation	31.077	4	97.72
Chemistry I	84.120	4	110.88
Dental Materials I	31.051	4	95.00
Personal Hygiene	48.120	4	56.56
Human Anatomy & Physiology	56.225	4	101.88
Chemistry II	84.243	4	120.68
Radiology I	31.053	4	88.52
Human Anatomy & Physiology	56.226	4	119.96
Composition	42.120	4	87.72
Anatomy-Head & Neck	31.087	4	106.00
First Aid	31.057	2	122.72
Chemistry III	31.079	4	131.80
Radiology II	31.054	4	92.60
Clinical Assisting	31.059	4	182.88
Intro. Psychology	90.231	4	55.96
Histology	31.080	4	91.08
Pre-Clinical Oral Hyg.	31.081	4	163.60
Speech	94.131	4	65.32

Average 1st year cost per student - $2,001.16

2nd year:

Office Management	23.089	4	94.60
Microbiology I	56.235	4	103.56
Clinical Oral Hygiene I	31.082	4	157.08
Clinical Oral Hygiene II	31.083	4	111.08
Clinical Oral Hygiene III	31.084	4	186.48
Nutrition & Diet	51.102	4	83.48
Microbiology	31.085	4	131.80
Pathology	31.086	4	131.80
Pharmacology	31.087	4	111.08
Survey of Social Sci. I	90.100	4	56.96
Periodontology	31.088	4	95.32
Dental Health Education	31.089	2	64.04
Public Health & Prevent. Dentistry	31.090	2	61.20

Average Student Cost (2nd year) $1,256.68
Average Program Cost per student $3,257.84
Average yearly cost per Student $1,628.92

Cost Differential -- 1.65

Community College B

Electronics Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Electronics I	39.050	4	95.04
Electronics II	39.051	4	148.24
Electronics III	39.052	5	140.00
Technical Physics I	95.055	4	108.12
Technical Physics II	95.056	4	138.20
Technical Physics III	95.057	4	206.64
Technical Mathematics I	95.053	4	71.36
Technical MathematicsII	95.054	4	82.44
Technical Mathematics III	95.058	4	85.24
Communication I	42.050	4	62.88
Communication II	42.051	4	62.96
Human Relations	90.050	4	63.36
Orientation	68.101	1	10.92
Physical Education		3	72.60
Average 1st year cost per student			$ 1,280.76
2nd year:			
Pulse Circuits	39.076	6	150.78
R. F. Communications	39.080	4	128.32
Tech. Report Writing	23.055	4	74.92
Technical Drafting	35.050	4	98.16
Industrial Control	39.077	4	128.32
R.F. Communications	39.081	4	91.72
Transmission Lines	39.082	4	91.72
Seminar	39.079	1	25.11
Business Organization	23.142	4	67.80
Computer Fund. & Logic	39.078	5	142.40
Microwave Fundamentals	39.083	4	104.68
Elec. Measuring Inst.	39.084	4	104.68
Elective		4	94.28
Physical Education		3	72.60
Average 2nd year cost per student			1,405.49
Average Program cost per student			2,653.49
Average yearly cost per student			1,326.75
Cost Differential			1.34

Community College B

Engineering Drafting Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Technical Drafting I	35.050	4	98.16
Technical Math I	95.053	4	71.36
Technical Math II	95.054	4	82.44
Technical Math III	95.058	4	85.24
Materials of Industry	95.052	4	53.88
Communication	42.050	4	62.88
Engineering Drafting	35.053	4	111.76*
Engineering Drafting	35.054	4	97.08
Surveying I	35.055	4	101.84
Report Writing	23.055	4	74.92
Technical Illustration	95.051	4	38.80
Technical Physics	95.055	4	108.12
Physical Education		3	73.20
Average 1st year cost per student			$ 959.68
2nd year:			
Engineering Drafting III	35.079	4	138.64
Engineering Drafting IV	35.080	4	197.52
Engineering Drafting V	35.081	4	180.00
Strength of Materials	95.082	4	74.24
Manufacturing Process	95.079	4	108.60
Manufacturing Process II	95.080	4	170.72
Electronics I	39.050	4	94.68
Technical Physics III	95.057	4	206.64
Human Relations	90.050	4	63.36
Technical Mechanism	95.083	4	152.24
Elective		8	223.52*
Physical Education		3	73.20
Average 2nd year cost per student			1,530.36
Average Program cost per student			2,490.04
Average yearly cost per student			1,245.02
Cost Differential			1.26

Community College B

Mid-Management Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Typing	23.110	4	81.08
Bus. Organization	23.142	4	67.80
Intro. to Data Proc.	27.052	4	90.24
Communication	42.050	4	62.88
Orientation	68.101	1	10.52
Physical Education		3	67.20
Business Math	23.140	4	178.24
Business Correspondence	23.141	4	74.00
Office Machines	23.212	4	84.84
Princ. or Management	23.084	4	80.40*
Principles of Sales	23.058	4	80.40*
Principles of Marketing	23.084	4	79.52
Principles of Marketing	23.085	4	80.40*
Social Science	90.101	4	54.50
Public Speaking	94.131	4	65.32
Princ. of Advertising	23.087	4	78.92
Seminar	23.098	1	34.87
Internship	23.099	5	166.55

Average 1st year cost per student: $1,437.58

Course Name and Number		Credit Hours	Course Cost per Student
2nd year:			
Seminar	23.089	2	69.74
Internship	23.099	10	333.10
Principles of Acctng.	23.150	4	68.64
Principles of Acctng.	23.151	4	73.64
Business Law	23.201	4	185.52
Business Law	23.202	4	65.20
Office Mgt.	23.089	4	185.52
Human Relations	90.050	4	63.36
Physical Education		1	24.40
Electives			
Report Writing	23.055	4	74.92
Advanced Accounting	23.077	4	80.40*

Average 2nd year cost per student 1,133.52

Average Program cost per student 2,571.10

Average yearly cost per student 1,285.55

Cost Differential 1.30

Community College B

Practical Nursing Program

Course Name and Number		Credit Hours	Course Cost per Student
One year Program			
Body Structure & Function	71.050	2	41.88
Conditions of Illness	71.051	2	35.94
Nutrition and Diet Therapy	71.052	2	41.88
Nursing Principles and Skills	71.054	5	88.70
Pharmacology	71.055	1	24.31*
Communication I	42.050	4	62.88
Personal and Vocational Relationship	71.056	2	48.62*
Maternal & Child Care	71.057	2	32.74
Clinical Therapy I	71.060	6	220.86
Clinical Therapy II	71.062	8	287.68
Clinical Therapy III	71.064	8	194.48*
Clinical Practice I	71.061	6	108.00
Clinical Practice II	71.063	8	194.48*
Clinical Practice III	71.065	8	194.48*

Average yearly cost per student	$ 1,576.93
Cost Differential	1.60

Community College B

Secretarial Science Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Business Organization	23.142	4	67.80
Communications	42.050	4	62.88
Touch Shorthand	23.066	4	134.84
Touch Shorthand	23.067	4	131.80
Touch Shorthand	23.068	4	185.20
Typing	23.110	4	81.08
Typing	23.111	4	79.80
Typing	23.112	4	130.88
Orientation	68.101	1	10.92
Physical Education		3	59.64
Business Correspondence	23.141	4	74.00
Business Math	23.140	4	178.24
Office Machines	23.212	4	84.84
Public Speaking	94.131	4	65.32
Average 1st year cost per student			$ 1,347.24
2nd year:			
Intro. to Data Proc. (Elect.)	27.052	4	90.24
Office Accounting	23.062	4	73.24
Office Management	23.089	4	94.60
Transcription	23.091	4	69.40
Transcription	23.092	4	105.80
Physical Education		2	39.76
Business Law	23.201	4	65.20
Speed Typing (Elective)	23.095	4	125.72
Human Relations	90.050	4	63.36
Seminar	23.098	4	139.48
Internship	23.099	12	399.72
Average 2nd year cost per student			1,266.52
Average Program cost per student			2,613.76
Average yearly cost per student			1,306.88
Cost Differential			1.32

Community College B

One year Stenographic Program

Course Name and Number		Credit Hours	Course Cost per Student
Business Organization	23.142	4	67.80
Communication	42.050	4	62.88
Touch Shorthand	23.066	4	134.84
Touch Shorthand	23.067	4	131.80
Touch Shorthand	23.068	4	185.20
Typing	23.110	4	81.08
Typing	23.111	4	79.80
Typing	23.112	4	130.88
Orientation		1	10.92
Business Correspondence	23.141	4	130.88
Business Math	23.140	4	178.24
Office Machines	23.212	4	84.84
Public Speaking	94.131	4	65.32
Physical Education		3	59.64
Human Relations	90.50	4	63.36
Intro. Data Processing	27.052	4	90.24
Office Accounting	23.062	4	73.24
Office Mgt.	23.084	4	80.40*

Average yearly cost per student	**$ 1,635.27**
Cost Differential	**1.66**

Community College B

Institutional Expenditures by Function

Education Fund	Included	Not included
Administration	138,620.30	24,365.37
Instruction	835,191.65	118,781.62
Learning Resource Center	36,349.00	40,166.54
Student Services	69,838.45	468.00
Research	965.00	
Bookstore	640.58	
Maintenance of Physical Facilities	4,484.88	328.80
Building Fund		
Maintenance of Physical Facilities	51,346.64	80,097.09
	1,155,436.50	263,881.90

In addition, $257,090.89 have been identified as departmental capital outlay expenditures but have not been included in operational program costs.

CHAPTER IV

COMMUNITY COLLEGE C

Community College C is located in an urban area and has been in existence for many years. The college shares some facilities with the local high school in addition to the temporary buildings in use at a developing campus. Equipment necessary for the teaching of occupational programs is sometimes shared with the high school and sometimes bought outright as needed by the college. The data obtained from this college provided a general category for vocational and technical education. This category included the disciplines of architectural technology, electrical technology, electronics technology, industrial technology, commercial pilot training, and building construction. In the case of some areas, such as pilot training, course costs and credit hours were reported as subtotals. In such cases, an average was determined and assigned to all courses in the subtotal. Within the time period allotted to this study, a breakdown of the data within the broad vocational-technical education category was not pssible.

The assignment of salary was based upon the credit hour ratio. No attempt was made to identify indirect teaching activities nor was a percentage of the instructional salary reserved for this purpose. The entire gross salary of each instructor was assigned to the courses comprising his teaching load for the academic year.

The average yearly cost per student in a liberal arts program has been determined as $856.98. In comparison, the average yearly cost per student as determined for the occupational programs ranges from a low of $697.18 for the mid-management program to a high of $1,973.75 for the electronics technology program. Of the eight occupational programs for which such costs have been determined, two have been identified as being less costly than the liberal arts program while six were identified as being more costly.

Reference should also be made to business courses 156 and 160. The enrollment in these courses, four students and three students respectively, results in a high cost per student credit hour. Virtually the same direct salary would have been assigned to these courses if 15 or 20 students had been enrolled. This high cost per student credit hour not only affects the course cost but also the program cost when these courses are required in a given curricula. (e.g., Clerical, Secretarial Science).

The reader is referred to Section V of Chapter I for information describing the nature, organization and format of the data presented in chapters II through VII. Chapter IX presents a summary and discussion.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College C

Program	Average Yearly Operating Cost per Student	Cost Differ-ential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts & Sci.	856.98			986.08
Bus. Administr.	715.94	.84	27.30	957.78
Bus. Clerical, Steno.	1,185.14	1.38	49.14	1,356.58
Bus. Mid-Mgmnt.	697.18	.81	32.76	845.67
Bus. Secr. Sci	1,265.08	1.48	36.40	1,428.19
Drafting Tech.	1,291.56	1.50	314.10	1,728.34
Electronics Tech	1,973.75	2.30	488.60	2,592.45
Egnineering Tech.	1,774.48	2.07	488.60	2,393.18
A.S. in Nursing	1,409.84	1.64	.34	1,532.64

PROGRAM COST DETAIL BY COURSE AND YEAR

Community College C

Liberal Arts & Sciences

Course Name and Number		Credit Hours	Couse Cost per Student
1st year:			
English - Rhetoric	101	3	72.03
English - Rhetoric	102	3	72.03
History - World Civil.	101	3	61.86
History - World Civil.	102	3	64.71
Mod. Language		4	146.92
Mod. Language		4	146.92
Science or Math		3-5	90.30 - 150.50
Science or Math		3-5	90.30 - 150.50
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			$ 800.92 - 921.32
2nd year:			
Health	151	2	48.24
Language or Speech		3	77.16
Language or Speech		3	109.86
Social Sciences Elective		3	56.37
Social Sciences Elective		3	56.37
Humanities Elective		3	79.65
Humanities Elective		3	79.65
Electives		6-8	159.30 - 212.40
Electives		6	159.30
Average 2nd year cost per student			825.90 - 879.00
Average Program cost per student			1,626.82 - 1,800.32
Average yearly cost per student			856.78

Community College C

Business Administration

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Business Prin. of Account.	110	3	63.72
Bus.-Princ. of Accounting II	111	3	78.78
Bus.-Intro. to Bus.	101	3	71.19
English - Rhet.	101	3	72.03
English - Rhet.	102	3	72.78
Humanities (elective)		3	79.65
Math Elective		3	73.14
Psychology Gen.	151	3	48.54
Social Sci. Elect.		3	56.37
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			$ 743.66
2nd year:			
Bus. - Cost Account.	210	3	96.18
Bus. - Prin. of Econ I	201	3	54.63
Bus. - Prin. of Econ. II	207	3	69.78
Bus. - Bus. Law I	215	3	63.18
Business Law II	216	3	68.34
Bus. - Pers. Mgmt.	213	3	56.79
Psychology Applied	200	3	65.10
Humanities		3	70.65*
Elective		3	79.65*
Average 2nd year cost per student			688.23
Average Program cost per student			1,431.89
Average yearly cost per student			715.94
Cost Differential			.84

Community College C

Business - Clerical, Stenographer

Course Name and Number		Credit Hours	Course Cost per Student
Business Communications	261	3	120.45
Bus. Fund. Rec. Keeping	105	3	70.17
Business Machines	155	3	110.97
Business Math	102	3	63.87
Bus.-Office Practice	156	3	377.28
Bus.-Typing I	171	3	68.10
Bus.-Typing II	172	3	87.87
English 100 or 101		3	72.03
Electives		6	27.55
Physical Education		1	27.55
Physical Education		1	27.55

Average yearly cost per student	$ 1,185.14
Cost Differential	1.38

Community College C

Business - Mid-Management

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Bus. - Prin. of Acctg. I	110	3	63.72
Bus. - Prin. of Acctg. II	111	3	78.78
Bus. - Intro. to Bus.	101	3	71.19
Bus. - Intro. to Mktg.	126	3	70.17*
Bus. - Retailing I	127	3	72.99
English - Rhet.	101	3	72.03
English - Rhet.	102	3	72.03
Health	151	2	48.24
Human. or S. Sci. Elect.		6	136.02
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			$ 741.02
2nd year:			
Bus. - Coop. Retailing	238	3	70.17*
Business Law I	215	3	63.18
Bus. - Pers. Mgmt.	213	3	56.79
Bus. - Mktg. Mgmt.	229	3	70.17*
Bus. - Mktg. Practicum	245	3	70.17*
Bus. - Prin. of Econ I	201	3	54.63
Bus. - Retailing II	128	3	70.17*
Bus. - Salesmanship	243	3	62.04
Humanities Elective		3	79.65
S. Science Elective		3	56.37
Average 2nd year cost per student			653.34
Average Program cost per student			1,394.36
Average yearly cost per student			697.18
Cost Differential			.81

Community College C

Business - Secretarial Science

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Business Math	102	3	63.87
Bus.-Sec. Practicum I	160	3	490.62
Bus.-Shorthand I	151	3	66.78
Bus.-Shorthand II	152	3	92.04
Bus.-Typing I	171	3	68.10
Bus.-Typing II	172	3	87.87
Eng. Rhetoric	101	3	72.03
Eng. Rhetoric	102	3	72.78
Health	141	2	48.24
Humanities Elective		3	79.65
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year Cost per Student			1,197.08
2nd year:			
Bus.-Bus. Machines	155	3	110.97
Bus. Communications	261	3	120.45
Bus.-Prin. of Econ. I	201	3	54.63
Bus.-Shorthand III	153	3	121.89
Bus.-Shorthand IV	154	3	123.69
Bus.-Typing III	173	3	101.61
Office Practice	156	3	377.28
Problems in Bus.	299	1-2	23.39 - 46.78
Social Science Elect.			75.16
Electives	1	8	212.40
Average 2nd year Cost per Student			1,321.47 - 1,344.86
Average Program Cost per Student			2,518.55 - 2,541.94
Average yearly Cost per Student			1,259.28 - 1,270.87
Cost Differential			1.23 - 1.24

Community College C

Aviation Technology (Commercial Pilot Training)

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Aviation	101	3	89.76
Aviation	102	3	89.76
Aviation	103	1	98.76
Aviation	151	3	89.76
Aviation	152	5	89.76
Aviation	153	1	89.76
Electric & Electronics	095	3	67.89
Gen. Tech.	103	3	78.33
Gen. Tech.	104	3	80.34
Gen. Tech.	106	3	96.72
Gen. Tech.	107	3	89.64
Geog.	101	3	46.83
Physical Education		1	27.55
Average 1st year cost per student			1,025.96
2nd year:			
Aviation	201	3	89.76
Aviation	202	3	89.76
Aviation	203	1	89.76
Aviation	251	3	89.76
Aviation	260	3	89.76
Aviation	270	1	89.76
Electricity & Electronics	096	3	121.65
Electricity & Electronics	097	3	81.09
Health	151	2	48.24
Speech	151	3	69.15
Humanities Elective		3	79.65
Humanities Elective		3	79.65
Physical Education		1	27.55
Average 2nd year cost per student			1,045.54
Average Program cost per student			2,071.50
Average yearly cost per student			1,035.75
Cost Differential			1.21

Community College C

Drafting Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Gen. Eng. - Eng. Geom.	102	3	145.50
Gen. Tech. - Intro. to Graph.	101	2	84.50
Gen. Tech. - Tech. Eng.	103	3	78.33
Gen. Tech. - Tech. Eng.	104	3	80.32
Gen. Tech. - Tech. Math	106	3	72.54
Gen. Tech. - Tech. Math	107	3	89.64
Health	151	2	48.24
Electives		4-5	106.20 - 132.75
Electives		5-6	132.75 - 159.30
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			893.14 - 946.24
2nd year:			
Elec. Tech. - El. Draft.	105	2	96.10
Gen. Eng. - Applied Draft. in Civil Eng.	211	2	244.38
Gen. Eng. - Applied Draft. in Mech. Eng.	212	2	92.30
Gen. Eng.-Arch. Project.	207	2	185.72
Gen. Eng.-Arch. Project.	208	2	277.60
Gen. Eng.-Surveying	251	3	75.75
Gen. Tech.-Ind. Org. & Mgmt.	200	3	87.81
Gen. Tech. Rep. Writing	190	2	122.60
Human. or Soc. Sci. Elect.		3	68.01
Human. or Soc. Sci. Elect		3	68.01
Electives		6-7	185.85*
Electives		3-4	79.65*
Average 2nd year cost per student			1,583.78
Average Program cost per student			2,556.57 - 2,609.67
Average yearly cost per student			1,278.28 - 1,304.84
Cost Differential			1.49 - 1.52

Community College C

Electronics Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Elect. Tech.-El. Circuits	101	4	135.32
Elect. Tech.-El. Circuits II	102	4	660.20
Elect. Tech.-Fund. Elect.	103	4	232.84
Gen. Tech.-Intro. to Graphics	101	2	88.60
Gen. Tech.-Tech. Eng.	103	3	78.33
Gen. Tech.-Tech. Eng.	104	3	80.34
Gen. Tech. Math	106	3	96.72
Gen. Tech.-Tech. Math	107	3	89.64
Gen. Tech.-Tech. Physics	155	5	396.70
Health	151	2	48.24
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			$ 1,962.03
2nd year:			
Elec. Tech.-El. Drafting	105	2	96.10
Elec. Tech.-Semiconductors	107	4	186.92
Elec. Tech.-Adv. Elec. Cir.	151	4	306.84
Elec. Tech.-Indus. Elec.	160	5	306.50
Elec. Tech.-Fund. Computers	201	3	144.15
Gen. Tech.-Tech. Phys.	156	5	575.25
Gen. Tech.-Tech. Rept. Wrtg.	190	2	122.60
Gen. Tech.-Ind. Org. & Mgmt.	200	3	87.81
Hum. or S. Sci. Elect.		3	79.65
Hum. or S. Sci. Elect.		3	79.65
Average 2nd year cost per student			1,985.47
Average Program cost per student			3,947.50
Average yearly cost per student			1,973.75
Cost Differential			2.30

Community College C

Engineering Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Chem. Tech.-Inorganic	101	5	158.50
Chem. Tech.-Inorg. & Qual.	102	5	201.70
Gen. Tech.-Intro. to Graph.	101	2	88.60
Gen. Tech.-Tech. Eng.	103	3	78.33
Gen. Tech.-Tech. Eng.	104	3	80.34
Gen. Tech. Math	106	3	96.72
Gen. Tech. Math	107	3	89.64
Gen. Tech.-Tech. Physics	155	5	396.70
Health	151	2	48.24
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			$ 1,293.87
2nd year:			
Elect. Tech. El. Circuits I	101	4	135.32
Elect. Tech. El. Circuits II	102	4	660.20
Gen. Eng.-Eng. Geom.	102	3	145.50
Gen. Tech.-Tech. An. Geom. & Calc.	151	4	184.60
Gen. Tech.-Tech. Ana. Geom. & Calc. II	152	4	184.60
Gen. Tech.-Tech. Physics	165	5	575.25
Gen. Tech.-Tech. Rept. Wrtg.	190	2	122.60
Gen. Tech.-Ind. Org. & Mgmt.	200	3	87.81
Hum. or S. Sci. Elect.		3	79.65
Hum. or S. Sci. Elect.		3	79.65
Average 2nd year cost per student			2,255.08
Average Program cost per student			3,548.95
Average yearly cost per student			1,774.48
Cost Differential			2.07

Community College C

Associate of Science in Nursing

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Biol.-Integ. Hum. Bio. I	155	5	156.25
Biol.-Integ. Hum. Bio. II	156	5	136.25
English Rhet.	101	3	72.03
Home Ec.-Nutrition	115	2	37.76
Nursing-Fund. of	102	5	313.80
Nursing-Mat. & Child Health	125	7	433.51
Soc. Intro.	153	3	58.98
Physical Education		1	27.55
Physical Education		1	27.55
Average 1st year cost per student			1,263.68
2nd year:			
Mental-Physical Illness II	216	10	621.70
Mental-Physical Illness III	217	10	672.20
Nursing-Trends in	218	2	54.26
Psych.-Gen.	151	3	48.54
Humanities Elect.		3	79.65
Elective		3	79.65
Average 2nd year cost per student			1,556.00
Average Program Cost per student			2,819.68
Average yearly cost per student			1,409.84
Cost Differential			1.64

Community College C

Institutional Expenditures by Function

Education Fund	Included	Not included
Instruction	1,062,083.79	74,188.30
Learning Resource Center	108,297.45	6,713.62
Student Services & Aids	118,282.92	1,120.22
Public Services	22,062.24	1,570.00
General Administration	142,825.32	36.271.27
Operation of Physical Facilities	43,048.73	148,093.47
Building Fund	73,986.36	32,168.28
	1,570,586.81	300,125.16

In addition, $102,947.47 have been identified as department capital outlay expenditures but have not been included in operation program costs.

CHAPTER V

COMMUNITY COLLEGE D

Community College D is located in an urban area and is approximately six years old. The college is housed in new temporary facilities acquired on a lease-purchase plan. The course and program costs for this college are higher than similarly determined costs for the other colleges in this study, due primarily to the equipment and furniture necessary for the development of new facilities. Support expenditures were consistently identified at the discipline level for all college offerings. Of the six institutions selected for this study, this college had the most refined accounting procedures.

Direct salaries were assigned directly to each course through the use of the credit hour ratio. Special assignments, other than teaching, considered to be part of the instructional load were identified in dollar amounts. Such expenditures were typically incurred in the development of new courses or programs.

The average yearly cost per student based upon operating expenditures for the liberal arts program was determined as $1,265.42. In comparison, average yearly costs per student in the occupational programs ranged from a low of $978.54 for the accounting program to a high of $4,202.76 for the program in physical therapy. Of the twenty-five occupational programs for which costs have been determined, five programs ranked lower in cost than the liberal arts program while twenty occupational programs were identified as being more costly.

The reader is referred to Section V of Chapter I for information describing the nature, organization and format of the data presented in chapters II through VII. Chapter IX presents a summary and discussion.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College D

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts	1,265.42			1,419.50
Accounting	978.54	.77	9.72	1,106.29
Cooperative Off. Occ. - Account.	1,217.68	.96	12.96	1,346.54
Agriculture Bus.	2,560.74	2.02	382.49	3,062.25
Agricultural Prod. & Management	2,060.90	1.63	449.01	2,606.63
Arch. Drafting Tech.	1,617.16	1.28	1,182.60	2,923.44
Cooperative Off. Clerical	2,582.29	1.02	10.80	2,707.06
1 yr. Clerk-Typist	1,068.28	.84	12.96	1,175.50
Commercial Art	1,365.46	1.08	46.44	1,535.34
Data Processing	1,638.32	1.29	15.12	1,829.22
Assoc. in Gen. Ed.	1,036.28	.82		1,183.80
Electrical Engin. Tech.	2,461.26	1.94	1,222.02	2,705.75
Engine Power Tech. (Auto Option)	2,091.40	1.65	1,103.76	3,308.69
Engine Power Tech.	2,205.24	1.74	1,143.18	3,464.93
Industrial Draft. Tech.	1,936.84	1.53	1,064.34	3,111.73
Industrial Electronics Technology	2,260.06	1.79	1,103.76	2,483.31

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College D

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average Yearly Total Program Cost per Student
Medical Record Tech.	2,466.18	1.95	299.25	2,882.53
Mechanical Tech. (Mach. Design Opt.)	2,428.20	1.92	1,182.60	3,730.29
Mechanical Tech (Manufact. Option)	2,330.94	1.84	1,182.60	3,633.03
Bus. Mid-Managmnt.	1,561.14	1.23	17.28	1,740.62
Operating Rm. Assist.	2,375.99	1.88	313.50	2,805.38
Physical Therapy Assistant	4,202.76	3.32	299.25	4,619.17
Police Science Tech.	1,280.50	1.01	788.40	2,200.51
Registered Nurse	2,960.66	2.34	199.50	4,697.57
Secretarial Bus.	1,289.78	1.02	12.42	1,432.31
Cooperative Off. Occ. Secretarial	1,267.82	1.02	14.04	1,381.68

PROGRAM COST DETAIL BY COURSE AND YEAR

Community College D

Liberal Arts & Sciences

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English Comp. 110 or 111		3	149.97
English Comp. 111 or 112		3	149.97
Foreign Language		4	182.80
Foreign Language		4	182.80
Humanities		3	120.69
Humanities		3	120.69
Laboratory Science		4	147.52
Laboratory Science		4	147.52
Soc. Science	110	3	83.79
Soc. Science	111	3	92.04
Average 1st year cost per student			$ 1,377.79
2nd year:			
English Literature	112 or	3	188.10
Mathematics		3-4	95.46 - 127.28
Psychology	110	3	74.67
Social Science		3	86.10
Social Science		3	86.10
Speech	110	3	117.18
Electives		3-4	116.64 - 155.52
Electives		9-10	349.92 - 388.80
Average 2nd year cost per student			1,114.17 - 1,191.93
Average Program cost per student			2,491.96 - 2,569.72
Average yearly cost per student			1,265.42

Community College D

Accounting

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Accounting	111	3	86.28
Biology, Chemistry or Physics		4	147.52
Business	110	3	74.64
Business	120	3	85.38
Data Proc.	114	2	83.48
Economics	110	3	77.19
English 105 or 110		3	107.43
English 110 or 111		3	107.43
Social Science		3	83.79
Average 1st year cost per student			930.27
2nd year:			
Accounting	206	3	119.22
Accounting	208	3	93.24
Accounting	280	2	59.78
Art	110 or		
Music	150	3	105.24*
Business	115	3	72.12
Business	116	3	82.23
Business	130	3	103.35
Business	200	2	67.38
Management	207	3	61.72
Elective		3	87.51*
Elective		6	175.02
Average 2nd year cost per student			1,026.81
Average Program cost per student			1,957.08
Average yearly cost per student			978.54
Cost Differential			.77

Community College D

Cooperative Office Occupations - Accounting Curriculum

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Accounting	111	3	86.28
Business	110	3	74.64
Business English	125 or 111	3	106.80
Business	120	3	85.38
English 105 or 110		3	104.46
Humanities		3	120.69
Sec. Tr. 110 or 111		3	90.51
Sec. Tr.	115	3	89.97
Sec. Tr.	150	2	70.40
Sec. Tr.	151	2	107.80
Social Science 110 or 111		3	87.90
Average 1st year cost per student			1,333.39
2nd year:			
Accounting	206	3	119.22
Accounting	208	3	93.24
Business	115	3	72.12
Business	200	2	67.35
Data Proc.	114	2	83.48
Data Proc.	116	5	235.35
Economics 105 or 110		3	81.60
Laboratory Science		4	147.52
Sec. Tr.	250	1	60.91
Sec. Tr.	251	1	100.48
Sec. Tr.	260	1	60.91
Sec. Tr.	261	1	100.48
Electives		3	10.70
Average 2nd year cost per student			1,101.96
Average Program cost per student			2,435.35
Average yearly cost per student			1,217.68
Cost Differential			.96

Community College D

Agricultural Business

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Ag. Bus.	110	3	217.65
Ag. Bus.	111	3	178.68
Ag. Bus.	118	3	155.43
Agriculture	110	3	180.36
Agriculture	112	3	142.71
Agriculture	113	3	152.61
Agriculture	116	3	177.57
English 105 or 110		3	104.46
Humanities		3	120.69
Social Science		3	86.10
Social Science		3	86.10
Average 1st year cost per student			1,602.36
2nd year:			
Agriculture	203	4	248.48
Ag. Bus.	211	3	303.33
Ag. Bus.	212	6	877.92
Ag. Bus.	214	12	1,760.16
Accounting	110	3	77.13
Management	201	3	134.91
Speech	110	3	117.18
Average 2nd year cost per student			3,519.11
Average Program cost per student			5,121.47
Average yearly cost per student			2,560.74
Cost Differential			2.02

Community College D

Agriculture Production & Management

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Ag. Bus.	111	3	178.68
Ag. Bus.	118	3	155.43
Agriculture	110	3	180.36
Agriculture	112	3	142.71
Agriculture	113	3	152.61
Agriculture	116	3	177.57
Agriculture	117	3	255.54
English 105 or 110		3	104.46
Social Science		3	86.10
Average 1st year cost per student			1,433.46
2nd year:			
Agriculture	201	4	314.56
Agriculture	202	3	272.01
Agriculture	203	4	248.48
Ag. Management	230	3	233.46
Ag. Management	231	3	222.87
Ag. Management	232	5	455.75
Ag. Management	234	9	820.53
Humanities		3	120.69
Average 2nd year cost per student			2,688.35
Average Program cost per student			4,121.81
Average yearly cost per student			2,060.90
Cost Differential			1.63

Community College D

Architectural Drafting Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Arch. Draft.	111	3	139.65
Arch. Draft.	112	3	205.08
Arch. Draft.	115	2	73.24
Arch. Draft.	116	3	104.31
Arch. Draft.	121	2	75.64
Arch. Draft.	125	4	196.44
English	105	3	104.40
English	110	3	104.49
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	135	5	184.65
Gen. Tech.	137	3	149.49
Humanities		3	120.69
Average 1st year cost per student			1,661.61
2nd year:			
Arch. Draft.	201	3	146.37
Arch. Draft.	202	3	173.19
Arch. Draft.	221	3	136.83
Arch. Draft.	225	2	125.30
Arch. Draft.	226	2	90.70
Arch. Draft.	227	3	140.34
Arch. Draft.	229	3	125.49
Gen. Tech.	113	4	166.24
Gen. Tech.	201	3	114.66
Mech. Tech.	203	3	181.38
Social Science		3	86.10*
Social Science		3	86.10*
Average 2nd year cost per student			1,572.20
Average Program cost per student			3,234.31
Average yearly cost per student			1,617.16
Cost Differential			1.28

Community College D

Cooperative Office Occupations - Clerical Curriculum

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Business	120	3	85.38
English 105 or 110		3	104.46*
English	111 or		
Business	125	3	106.80*
Humanities		3	120.69
Sec. Tr. 110, 111, or 210		3	102.12*
Sec. Tr. 111, 210, or 211		3	102.12
Sec. Tr.	115	3	89.97
Sec. Tr.	150	2	70.40
Sec. Tr.	151	2	107.80
Social Science 110 or 111		3	87.90
Electives		3	119.19*
Average 1st year cost per student			1,173.96
2nd year:			
Business	110	3	74.64
Business	200	2	67.38
Data Proc.	114	2	83.48
Economics 105 or 110		3	81.60
Laboratory Science		4	147.52
Sec. Tr.	202	3	238.89
Sec. Tr.	205	2	76.58
Sec. Tr. 210 or 211		3	116.76
Sec. Tr.	250	1	60.91
Sec. Tr.	251	1	100.48
Sec. Tr.	260	1	60.91
Sec. Tr.	261	1	100.48
Electives		4-6	158.92 - 238.38
Average 2nd year cost per student			1,368.55 - 1,448.01
Average Program cost per student			2,542.51 - 2,621.97
Average yearly cost per student			1,271.35 - 1,310.94
Cost Differential			1.00 - 1.04

Community College D

One - Year Clerk Typist

Course Name and Number		Credit Hours	Course Cost per Student
Business	110	3	74.64
Bus. Math	120	3	85.38
Bus. Commun.	125 or		
English	111	3	106.80*
Business Psych	200	2	67.38
English 105 or 110		3	104.46
Sectr. 110, 111, or 210		3	102.12
Sectr. 111, 210, 211		3	102.12
Sectr.	115	3	89.97
Sectr.	202	2	159.26
Sectr.	205	2	76.58
Electives		3	99.57*

Average Program cost per student	1,068.28
Average yearly cost per student	1,068.28
Cost Differential	.84

Community College D

Commercial Art

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Art	111	3	107.43
Art	112	3	129.36
Art	120	3	119.16
Art	121	3	151.89
Com. Art	140	3	127.44
Com. Art	141	3	123.66
English	110	3	104.49
English	111	3	113.43
Laboratory Science		4	147.52
Math		3-4	95.46 - 127.28
Average 1st year cost per student			1,219.84 - 1,251.66
2nd year:			
Art Electives		4-5	166.08 - 207.60
Art Electives		7-8	290.64 - 332.16
Com. Art	240	3	242.13
Com. Art	241	3	280.05
Humanities		3	120.69
Psychology	110	3	74.67
Social Science		3	86.10
Speech	110	3	117.18
Average 2nd year cost per student			1,463.64 - 1,546.68
Average Program Cost per student			2,683.48 - 2,798.34
Average yearly cost per student			1,341.74 - 1,389.17
Cost Differential			1.06 - 1.10

Community College D

Data Processing Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Accounting	111	3	86.28
Business	110	3	74.64
Data Proc.	113	3	128.94
Data Proc.	114	2	83.48
Data Proc.	116	3	141.21
Data Proc.	121	2	106.72
Data Proc.	122	5	224.35
Data Proc.	123	3	122.88
English	105	3	104.40
Gen. Tech.	201	3	114.66
Average 1st year cost per student			1,264.69
2nd year:			
Accounting	208	3	93.24
Data Proc.	215	5	372.00
Data Proc.	216	3	223.08
Data Proc.	221	4	171.04
Data Proc.	223	5	461.40
Data Proc.	225	3	258.87
Humanities		3	120.69
Math	202	3	139.44
Social Science		3	86.10
Social Science		3	86.10
Average 2nd year cost per student			2,011.96
Average Program cost per student			3,276.65
Average yearly cost per student			1,638.32
Cost Differential			1.29

Community College D

Associate in General Education Degree Program

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English 105 or 110		3	107.43
English 110 or 111		3	107.43
Humanities		2-3	80.46 - 120.69
Laboratory Science		3-4	110.64 - 147.52
Laboratory Science		3-4	110.64 - 147.52
Math 102 or above		3-4	94.89 - 126.52
Math		3-4	94.86 - 126.52
Social Science	110	3	83.79
Social Science	111	2-3	61.36 - 92.04
Elective		2-3	66.92 - 100.38
Average 1st year cost per student			918.45 - 1,159.84
2nd year:			
Humanities		3	120.69
Psychology	110	3	74.67
Sociology	110	3	71.67
Speech	110	3	117.18
Electives		10	334.60*
Electives		10	334.60*
Average 2nd year cost per student			1,053.41
Average Program cost per student			1,971.86 - 2,213.25
Average yearly cost per student			965.93 - 1,106.62
Cost Differential			.76 - .87

Community College D

Electronics Engineering Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Elect. Tech.	111	3	266.85
Elect. Tech.	116	2	120.18
Elect. Tech.	118	5	286.10
Elect. Tech.	119	4	283.92
Elect. Tech.	120	3	207.54
English 105 or 110		3	104.46
Gen. Tech.	110	1	38.61
Gen. Tech.	122	4	281.84
Gen. Tech.	135	5	184.65
Gen. Tech.	136	5	220.90
Social Science		3	86.10*
Average 1st year cost per student			2,081.15
2nd year:			
Elect. Tech.	221	3	207.39
Elect. Tech.	226	5	413.80
Elect. Tech.	227	4	315.36
Elect. Tech.	228	4	252.88
Elect. Tech.	229	3	252.54
Elect. Tech.	230	4	211.72
Gen. Tech.	113	4	166.24
Gen. Tech.	201	3	114.66
Humanities		3	120.69
Social Science		3	86.10*
Average 2nd year cost per student			2,841.38
Average Program cost per student			4,922.53
Average yearly cost per student			2,461.26
Cost Differential			1.94

Community College D

Engine Power Technology - Auto Application Option

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Electr. Tech.	114	3	179.01
English 105 or 110		3	104.46
Engine Power	110	5	311.30
Engine Power	113	3	199.08
Engine Power	115	3	182.22
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	135	5	184.65
Gen. Tech.	201	3	114.66
Mech. Tech.	111	3	195.27
Social Science		3	86.10*
Average 1st year cost per student			1,760.28
2nd year:			
Automobile Applications Option			
Engine Power	201	3	417.96
Engine Power	203	3	224.28
Engine Power	212	2	150.02
Engine Power	220	3	200.40
Engine Power	234	3	224.28
Engine Power	243	5	373.80
Engine Power	244	4	370.04
Humanities		3	120.69
Mech. Tech.	231	3	254.94
Social Science		3	86.10
Average 2nd year cost per student			2,422.51
Average Program cost per student			4,182.79
Average yearly cost per student			2,091.40
Cost Differential			1.65

Community College D

Engine Power Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Elect. Tech.	114	3	179.01
English 105 or 110		3	104.46
Engine Power	110	5	311.30
Engine Power	113	3	199.08
Engine Power	115	3	182.22
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	135	5	184.65
Gen. Tech.	201	3	114.66
Mech. Tech.	111	3	195.27
Social Science		3	86.10*
Average 1st year cost per student			1,760.28
2nd year:			
Heavy Equipment Application Option			
Engine Power	202	3	288.03
Engine Power	204	3	293.94
Engine Power	212	2	150.02
Engine Power	213	3	242.19
Engine Power	220	3	200.40
Engine Power	222	2	161.46
Engine Power	224	3	258.12
Engine Power	244	4	370.04
Humanities		3	120.69
Mech. Tech.	231	3	254.94
Social Sci.		3	86.10*
Tech. Electives		3	224.28
Average 2nd year cost per student			2,650.21
Average Program cost per student			4,410.49
Average yearly cost per student			2,205.24
Cost Differential			1.74

Community College D

Industrial Drafting Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English 105 or 110		3	104.46
Gen. Tech.	110	1	38.61
Gen. Tech.	135	5	184.65
Gen. Tech.	137	3	149.49
Indust. Draft.	112	2	145.38
Indust. Draft.	113	3	319.92
Mech. Tech.	111	3	195.27
Mech. Tech.	114	2	142.52
Mech. Tech.	131	3	194.31
Mech. Tech.	132	3	297.63
Mech. Tech.	133	3	297.63
Social Science		3	86.10*
Average 1st year cost per student			2,155.97
2nd year:			
Gen. Tech.	112	4	164.92
Gen. Tech.	113	4	166.24
Gen. Tech.	201	3	114.66
Indust. Draft.	201	3	117.03
Indust. Draft.	202	3	231.18
Indust. Draft.	203	3	323.22
Humanities		3	120.69*
Mech. Tech.	203	3	181.38
Mech. Tech.	232	3	212.40
Social Science		3	86.10*
Average 2nd year cost per student			1,717.82
Average Program cost per student			3,873.69
Average yearly cost per student			1,936.84
Cost Differential			1.53

Community College D

Industrial Electronics Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Electr. Tech.	111	3	266.85
Electr. Tech.	112	5	270.80
Electr. Tech.	113	5	461.60
English	110	3	104.49
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	113	4	166.24
Gen. Tech.	135	5	184.65
Gen. Tech.	137	3	149.49
Mech. Tech.	134	3	168.48
Average 1st year cost per student			1,976.13
2nd year:			
Electr. Tech.	201	6	505.08
Electr. Tech.	202	4	313.72
Electr. Tech.	205	4	248.72
Electr. Tech.	206	5	522.20
Electr. Tech.	207	4	546.72
Gen. Tech.	201	3	114.66
Humanities		3	120.69*
Social Science		3	86.10*
Social Science		3	86.10*
Average 2nd year cost per student			2,543.99
Average Program cost per student			4,520.12
Average yearly cost per student			2,260.06
Cost Differential			1.79

Community College D

Medical Record Technician

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Biology	140	4	144.88
English 105 or 110		3	104.40
English 110 or 111		3	104.49
Health Occ.	110	1	78.64
Med. Rec.	110	3	348.63
Med. Rec.	111	3	411.48
Med. Rec.	120	3	284.61
Med. Rec.	130	3	384.18
Psychology	110	3	74.67
Elective (Appr.)		3	227.64*
Elective (Appr.)		3	227.64
Average 1st year cost per student			$ 2,391.26
2nd year:			
Health Occ.	210	3	235.92
Humanities		3	120.69
Math 102 or above		4	126.52
Med. Rec.	210	7	785.31
Med. Rec.	211	7	785.31
Social Science		3	86.10
Elective (Appr.)		3	227.64
Elective (Appr.)		3	227.64
Average 2nd year cost per student			2,541.13
Average Program cost per student			4,932.39
Average yearly cost per student			2,466.18
Cost Differential			1.95

Community College D

Mechanical Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English 105 or 110		3	104.46
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	135	5	184.65
Gen. Tech.	136	5	220.90
Gen. Tech.	201	3	114.66
Mech. Tech.	111	3	195.27
Mech. Tech.	112	3	274.83
Mech. Tech.	131	3	194.31
Mech. Tech.	134	3	168.48
Mech. Tech.	201	4	293.52
Average 1st year cost per student			1,954.61
2nd year: Machine Design Option			
Gen. Tech.	113	4	166.24
Gen. Tech.	234	3	152.85
Humanities		3	120.69*
Mech. Tech.	204	4	378.92
Mech. Tech.	221	3	392.64
Mech. Tech.	222	4	600.52
Mech. Tech.	223	3	450.39
Mech. Tech.	231	3	254.94
Mech. Tech.	232	3	212.40
Social Science		3	86.10*
Social Science		3	86.10*
Average 2nd year cost per student			2,901.79
Average Program cost per student			4,856.40
Average yearly cost per student			2,428.20
Cost Differential			1.92

Community College D

Mechanical Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English 105 or 110		3	104.46
Gen. Tech.	110	1	38.61
Gen. Tech.	112	4	164.92
Gen. Tech.	135	5	184.65
Gen. Tech.	136	5	220.90
Gen. Tech.	201	3	114.66
Mech. Tech.	111	3	195.27
Mech. Tech.	112	3	274.83
Mech. Tech.	131	3	194.31
Mech. Tech.	134	3	168.48
Mech. Tech.	201	4	293.52
Average 1st year cost per student			1,954.61
2nd year:			
Manufacturing Option			
Gen. Tech.	113	4	166.24
Gen. Tech.	234	3	152.85
Humanities		3	120.46 *
Mech. Tech.	225	4	648.36
Mech. Tech.	226	3	225.51
Mech. Tech.	227	3	225.51
Mech. Tech.	228	3	225.51
Mech. Tech.	229	3	515.70
Mech. Tech.	231	3	254.94
Social Science		3	86.10 *
Social Science		3	86.10 *
Average 2nd year cost per student			2,707.28
Average Program cost per student			4,661.89
Average yearly cost per student			2,330.94
Cost Differential			1.84

Community College D

Mid-Management

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Business	110	3	74.64
Business	120	3	85.38
Business	125	3	100.14
Business	200	2	67.38
Economics	105	3	86.01
Economics	110	3	77.19
English	105	3	104.40
English	110	3	104.49
Management	115	3	116.01
Management	150	1	39.74
Management	152	1	31.00
Management	203	3	103.41
Social Science	110	3	83.79
Social Science	111	3	92.01
Average 1st year cost per student			1,242.72
Summer			
Management	152	1	31.00
Management	160s	3	93.00
Management	201	3	134.91
Management	207	3	92.58
2nd year:			
Art	110	3	105.24
Biology	110 or		
Phys. Sci.	111	4	127.36*
Business	115	3	72.12
Business	234	3	95.01
Management	200	3	111.09
Management	205	3	134.49
Management	209	3	134.49
Management	217	2	89.66
Management	250	1	46.46
Management	251	1	98.46
Management	260	3	196.80
Management	261	3	316.89
Average 2nd year cost per student			1,528.07
Average Program cost per student			3,122.28
Average yearly cost per student			1,561.14
Cost Differential			1.23

Community College D

Operating Room Assistant

Course Name and Number		Credit Hours	Course Cost per Student
1 year program			
Biology	11-	4	126.08
English	105or 110	3	104.46
Oper. Ass.		9	867.60
Oper. Ass.		10	969.00
Social Science	100	3	86.10
Elective (Appr.)		3	222.75

Average Program cost per student	2,375.99
Average yearly cost per student	2,375.99
Cost Differential	1.88

Community College D

Physical Therapy Assistant

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Biology	140	4	144.88
English 105 or 110		3	107.43
English 110 or 111		3	107.43
Health Occ.	110	1	78.64
Math 102 or above		4	126.52
Phy. Ther.	110	5	1,220.90
Phy. Ther.	111	6	1,490.58
Phy. Sci.	110	4	125.04
Psychology	110	3	74.67
Average 1st year cost per student			$ 3,345.67
2nd year:			
Health Occ.	210	3	235.92
Humanities		3	120.69*
Phy. Ther.	201	7	1,726.62*
Phy. Ther.	202	7	1,726.62*
Social Science		3	86.10
Electives (Appr.)		6	775.92*
Electives (Appr.)		3	387.96*
Average 2nd year cost per student			5,059.83
Average Program cost per student			8,405.52
Average yearly cost per student			4,202.76
Cost Differential			3.32

Community College D

Police Science Technology

Course Name and Number		Cr dit Hours	Course Cost per Student
1st year:			
English 105 or 110		3	104.46
Math		3-5	95.46 - 159.10
Physical Sci.	110	4	125.04
Pol. Tech.	110	4	164.96
Pol. Tech.	111	3	140.88
Pol. Tech.	130	1	39.15
Pol. Tech.	190	1	42.38*
Pol. Tech.	191	1	48.75
Pol. Sci.	101	1	37.46
Pol. Sci.	119	3	76.26
Sociology	110	3	71.67
Average 1st year cost per student			946.47 - 1,010.11
Summer Session:			
Pol. Tech.	200	2	84.76
Pol. Tech.	201	3	127.14
2nd year:			
Humanities		3	120.69
Pol. Tech.	192	1	56.96
Pol. Tech.	211	3	127.14
Pol. Tech.	225	2	84.76
Pol. Tech.	226	2	84.76
Pol. Tech.	228	3	127.14
Pol. Tech.	230	3	157.11
Sociology	210	3	84.12
Sociology	218	3	79.83
Speech	110	3	117.18
Tech. Elective		2-4	82.78 - 165.56
Tech. Elective		4-6	165.56 - 248.34
Average 2nd year cost per student			1,288.03
Average Program cost per student			2,446.40 - 2,675.60
Average yearly cost per student			1,223.20 - 1,337.80
Cost Differential			.97 - 1.06

Community College D

Registered Nurse

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Biology	140	4	144.88
Biology	210	4	132.52
English 105 or 110		3	107.43*
English 110 or 111		3	107.43*
Health Occ.	110	1	78.64
Psychology	110	3	74.67
Reg. Nurse	110	5	743.54
Sociology	110	3	71.67
Average 1st year cost per student			2,054.39
2nd year:			
Health Occ.	210	3	829.62
Humanities		3	120.69*
Math 102 or above		4	126.52
Reg. Nurse	220	10	1,258.40 *
Reg. Nurse	221	10	1,258.40 *
Elective (Appr.)		3	273.30*
Average 2nd year cost per student			3,866.93
Average Program cost per student			5,921.32
Average yearly cost per student			2,960.66
Cost Differential			2.34

Community College D

Secretarial

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Business	110	3	74.64
Business	120	3	85.38
Economics	105	3	86.01
English	105	3	104.40
English	110	3	104.49
English	111	3	113.43
Sectr.	110	3	90.51
Sectr.	111	3	84.15
Sectr. 120, 125, or 126		3	96.96*
Sectr.	121	3	89.76
Sectr.	210	3	103.62
Sectr.	220	3	109.68
Social Science	110	3	83.79
Social Science	111	3	92.04
Average 1st year cost per student			1,395.99
2nd year:			
Business	115	3	72.12
Business	125	3	100.14
Business	200	2	67.38
Humanities		3	120.69
Laboratory Science		4	147.52*
Sectr.	205	2	43.32
Sectr.	210	3	103.62
Sectr.	211	3	130.17
Sectr.	220	3	109.68
Sectr.	221	3	78.75
Sectr.	230	3	98.76
Electives		3-4	82.23 - 140.64
Average 2nd year cost per student			1,154.38 - 1,212.79
Average Program cost per student			2,550.37 - 2,608.78
Average yearly cost per student			1,275.18 - 1,304.39
Cost Differential			1.01 - 1.03

Community College D

Cooperative Office Occupations - Secretarial Curriculum

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	110	3	77.13
Business	120	3	85.38
English 105 or 110		3	104.46
English 111 or Business 125		3	106.80
Sectr. 110, 111, or 210		3	102.12
Sectr. 111, 210, or 211		3	102.12
Sectr. 120, 121, or 220		3	101.43
Sectr. 121, 220, 126, or 221		3	101.43
Sectr.	125	3	111.81
Sectr.	150	2	105.60
Sectr.	151	2	107.80
Social Science 110 or 111		3	87.90
Average 1st year cost per student			$ 1,193.98
2nd year:			
Business	110	3	74.64
Business	200	2	67.38
Data Processing	114	2	83.48
Economics 105 or 110		3	81.60
Humanities		3	120.69
Laboratory Science		4	147.52
Sectr.	205	2	76.58
Sectr.	230	3-4	148.65 - 198.20
Sectr.	250	1	60.91
Sectr.	251	1	100.48
Sectr.	260	1	60.91
Sectr.	261	1	100.48
Electives		4-6	154.84 - 232.26
Average 2nd year cost per student			1,278.16 - 1,405.13
Average Program cost per student			1,236.07 - 1,299.11
Average yearly cost per student			1,236.07 - 1,299.56
Cost Differential			.98 - 1.03

Community College D

Institutional Expenditures by Function

Education Fund	Included	Not Included
College Transfer & General Studies	999,082.53	58,539.51
Health Occupations	122,809.94	18,018.45
Engineering & Industrial Occupations	358,140.29	382.706.11
Business Occupations	165,928.73	5,304.61
Agricultural Occupations	65,293.55	16,117.18
General Instruction		63,195.23
Instructional Resource Center	115,118.60	80,368.50
Student Records Admissions	89,514.23	1,404.00
Health Services	15,297.98	270.70
Counseling	135,717.93	
Financial Aids & Placement	17,210.28	
Student Activities	48,006.88	1,976.16
Student Services	25,867.52	
General Administration	351,594.76	35,287.98
Operation & Maintenance	248,672.82	20,830.26
	2,758,255.84	684,017.99

In addition, $466,353.97 have been identified as departmental capital outlay expenditures but have not been included in operational program costs.

CHAPTER VI

COMMUNITY COLLEGE E

Community College E is located in a rural area and is approximately five years old. The college is housed in new temporary facilities. All data for this institution were available on a discipline basis and the identification of course assignments was therefore not possible. In view of the limited size of this insitution and the distinctly different occupational program offerings, the determination of program costs was possible. It should be noted, however, that the discipline cost is the average cost of all courses within each discipline and that program costs determined on the discipline basis lack the refinement accorded to program costs determined on a course basis. A Discipline Cost Listing based upon the student credit hour has been substituted for the course credit listing provided for each of the previous insitutions.

The average yearly cost per student based upon operating expenditures for the liberal arts program has been determined at $879.54. In comparison, the average yearly cost for occupational programs ranges from a low of $750.80 for the teacher-aid program to a high of $1,051.99 for the Data Processing program. Of the seven programs for which occupational program costs were determined, one program was less costly than the liberal arts curriculum while six were identified as being more costly.

The reader is referred to Section V of Chapter I for information describing the nature, organization and format of the data presented in chapters II through VII. Chapter IX presents a summary and discussion.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College E

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts & Sci.	879.54	1.00		1,144.74
Agriculture	1,006.50	1.14		1,324.30
Bus. Administration	924.42	1.05	5.50	1,188.90
Child Care Tech.	956.96	1.09		1,240.65
Data Processing	1,051.59	1.19	903.36	2,213.71
General Business	951.01	1.08	7.70	1,212.09
Executive Secr.	1,033.05	1.17	12.10	1,283.75
Teacher Aide	750.80	.85		999.20

PROGRAM COST DETAIL BY COURSE AND YEAR
Community College E

Liberal Arts and Pre-Professional Curriculum

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English Composition	101	3	78.03
English Composition	102	3	78.03
History of W. Civil.	101	4	95.64
History of W. Civil.	102	4	95.64
Modern Language		4	126.16
Modern Language		4	126.16
Math		5	143.45
Science		5	171.35
Physical Education		1	28.56
Physical Education		1	28.56
Average 1st year cost per student			$ 971.58
2nd year:			
Health Education	101	2	55.40
History of U. S.	103	3	71.73
History of U. S.	104	3	71.73
Literature or Art		3	73.59
Literature or Music		3	62.43
Political Science	101	3	77.61
Electives		5	125.00
Electives		10	250.00
Average 2nd year cost per student			787.49
Average Program Cost per student			1,759.07
Average yearly cost per student			879.54

Community College E

Agriculture Curriculum

Course Name and Number		Credit Hours	Course Co per Stude
1st year:			
Accounting	101	3	89.31
Chemistry	101	5	141.60
Chemistry	102	5	141.60
English Composition	101	3	78.03
English Composition	102	3	78.03
Health Education	101	2	57.12
Math		3	86.07
World Geography	104	3	68.46
Physical Education		1	28.56
Physical Education Summer		1	28.56
Botany	101	5	172.90
Average 1st year cost per student			$ 970.24
2nd year:			
Economics	205	3	68.49
Physical Geography	101	4	91.28
Political Science	101	3	77.61
Zoology	101	5	190.65
Electives		4	144.64*
Electives		13	470.08*
Average 2nd year cost per student			1,042.75
Average Program cost per student			2,012.99
Average yearly cost per student			1,006.50
Cost Differential			1.14

Community College E

Business Administration Curriculum

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	89.31
Accounting	102	3	89.31
Intro. to Business	103	3	72.54
English Composition	101	3	78.03
English Composition	102	3	78.03
Health Education		2	55.40
Humanities		3	78.00
Math		4	114.76
Psychology	101	3	71.73
Speech		3	72.63
Physical Education		1	28.56
Physical Education		1	28.56
Average 1st year cost per student			$ 856.86
2nd year:			
Business Law	207	3	154.11
Economics	205	3	68.49
Economics	206	3	68.49
Humanities		3	78.00
Intermediate Accounting	250	3	89.31
Political Science		3	77.61
Marketing	215	3	123.18
Retailing	216	3	87.27*
Science		4	122.76*
Science		4	122.76*
Average 2nd year cost per student			991.98
Average Program cost per student			1,848.84
Average yearly cost per student			924.42
Cost Differential			1.05

Community College E

Child Care Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Biology	101	4	137.40
Biology	102	4	137.40
Child Care Practicum	107	3	91.11
Child Development	111	3	91.11
Child Psychology	215	3	71.73
English Composition	101	3	78.03
Nutrition	101	3	91.11
General Psychology	101	3	71.73
Foundamentals of Speech	103	3	72.63
Sociology	101	3	67.74
Physical Education		1	28.56
Physical Education		1	28.56
Average 1st year cost per student			$ 967.11
2nd year:			
Audio Visual Methods	205	2	57.12
Child Activity Program	202	3	91.11
Child Care Practicum	108	3	91.11
Child Care Practicum	109	3	91.11
Creative Act. in Arts & Craft	109	3	90.09
Exceptional Children	269	3	71.73
First Aid	208	2	57.12
Group Process	203	3	71.73
History or Economics		3	71.73
Marriage & Family	252	3	91.11
Educational Psychology	202	3	71.73
Seminar in Child Care	201	3	91.11
Average 2nd year cost per student			946.80
Average Program cost per student			1,913.91
Average yearly cost per student			956.96
Cost Differential			1.09

Community College E

Data Processing

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	89.31
Accounting	102	3	89.31
Computer Programming	119	4	145.88
Data Process Application	120	3	109.11
Data Process Math	118	3	86.07
Data Process Math	121	3	86.07
English Composition	101	3	78.03
Fundamental Data Proc.	116	4	145.88
Fundamentals of Speech	103	3	72.63
Unit Record Equipment		4	145.88
Average 1st year cost per student			$ 1,048.47
2nd year:			
Business Organization & Mgmt.	127	3	72.54
Computer Programming	122	4	145.88
Computer Programming	125	4	145.88
Data Process Acct.	124	3	89.31
Data Proc. Pract.	126	4	145.88
Economics	205	3	68.49
Sociology	101	3	76.74
Statistics	221	3	86.07
System Design	123	4	145.88
Tech. Report Writing	137	3	78.03
Average 2nd year cost per student			1,054.70
Average Program cost per student			2,103.17
Average yearly cost per student			1,051.59
Cost Differential			1.19

Community College E

General Business Curriculum

Course Name and Number		Credit Hours		Course Cost per Student
1st year:				
Accounting	101	3		89.31
Accounting	102	3		89.31
Intro. to Business	103	3		72.54
English Composition	101	3		78.03
English Composition	102	3		78.03
Math or Science		3		86.07
Math or Science		6		172.14
Office Machines		3		113.85
Typewriting 141, 142. or 243		3		113.85
Physical Education		1		28.56
Physical Education		1		28.56
Average 1st year cost per student			$	950.25
2nd year:				
Business Communication	201	3		78.03
Business Law	210	3		154.11
Economics	205	3		68.49
Economics	206	3		68.49
Health Education	101	2		55.40
Marketing	215	3		123.18
Retailing	216	3		87.27
Social Science		3		71.13
Social Science		3		71.13
Electives		2		58.18
Electives		4		116.36
Average 2nd year cost per student				951.77
Average Program cost per student				1,902.02
Average yearly cost per student				951.01
Cost Differential				1.08

Community College E

Executive Secretary

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Intro. to Business	103	3	72.54
English Composition	101	3	78.03
Office Machines	150	3	109.41
Principles of Accounting	101	3	89.31
Principles of Accounting	102	3	89.31
Production Typewriting	243	3	109.38
General Psychology	101	3	71.73
Shorthand, Dict. & Trans.	123	3	109.41
Shorthand, Dict. & Trans.	223	3	109.41
Typewriting	142	3	109.41
Physical Education		1	28.56
Physical Education		1	28.56
Average 1st year cost per student			$ 1,005.06
2nd year:			
Business Communications	201	3	72.54
Business Elective		3	87.27
Business Law	210	3	154.11
Health Education	101	2	55.40
Math	101	3	86.07
Office Management	251	3	113.85
Political Science	101	3	77.61
Secretarial Procedures	283	3	113.85
Fundamentals of Speech	103	3	72.63
Supervisioned Work Exper. or Elective		3	113.85
Supervisioned Work Exper. or Elective		3	113.85
Average 2nd year cost per student			1,061.03
Average Program cost per student			2,066.09
Average yearly cost per student			1,033.05
Cost Differential			1.17

Community College E

Certificate Program for Teacher Aide

Course Name and Number		Credit Hours	Course Cost per Student
Art	109	3	73.59
Audio Visual Methods	205	2	57.12
Biology	101	4	78.80
English Composition	101	3	78.03
First Aid	208	2	55.40
History	103	3	71.73
History	104	3	71.73
Physical Science	104	4	120.04
Psychology	101	3	71.73
Speech	103	3	72.63
Average yearly cost per student			750.80
Cost Differential			.85

Community College E

Institutional Expenditures by Function

Education Fund	Included	Not included
Instruction	548,497.01	48,863.62
Learning Resource Center	31,272.90	43.724.59
Student Services & Aids	47,492.72	60.16
Auxiliary Services	56,666.46	3,294.30
General Administration	132,525.94	3,596.68
Operation of Physical Facilities	72,619.22	172,880.90
	889,074.28	272,420.25

In addition, $89,007.98 have been identified as departmental capital outlay expenditures but have not however been included in operational program costs.

CHAPTER VII

COMMUNITY COLLEGE F

Community College F is located in an urban area and has been in existence for many years. The college is housed in facilities shared with the local high school. New equipment costs and costs incurred for the replacement of old equipment are also shared with the high school. As in the case of Community College E, data from this institution were available on a discipline basis and the assignment of expenditures on a course basis was not possible. A list was provided by the college identifying the discipline codes to which courses were assigned, thus allowing for the determination of program costs. It should be noted that the program costs determined on a discipline basis lack the refinement accorded to program costs determined on a course basis. A Discipline Cost Listing based upon the student credit hour has been provided in lieu of the Course Cost Listing developed for institutions A through D.

The average yearly cost per student based upon operating expenditures for the liberal arts program has been determined as $1,005.78. In comparison, the range of average yearly cost per student determined for the occupational programs varies from a low of $763.41 for the general business program to a high of $1,360.00 for the program in electronics technology. Of the twenty-two average program costs determined at this college, sixteen (all except one in the business area) ranked below the cost of the Liberal Arts Curricula and six ranked above it.

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College F

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Liberal Arts	1,005.78	1.00		1,220.96
Bus.-Accounting	839.92	.84	1.80	1,066.18
Bus.-Accounting Certificate	1,016.00	1.01	2.16	1,269.32
Bus.-Administrative Office Assist.	855.26	.85	1.98	1,063.54
Bus.-Data Processing	1,143.89	1.14	52.48	1,443.69
Bus.-Management Certificate	923.37	.92	2.43	1,171.96
Bus.-Management	862.68	.86	1.89	1,075.29
Bus. Marketing-Management	890.69	.88	1.44	1,117.60
Bus.-Insurance Cert.	872.10	.87	2.43	1,100.46
Bus.-Insurance	845.28	.84	1.89	1,072.67
Bus.-Clerical Cert.	927.69	.92	2.34	1,149.46
Bus.-General	763.41	.76	1.62	985.13
Bus.-General Off. Assistant	875.39	.87	1.98	1,108.87
Electronics Tech.	1,360.16	1.35	8.64	1,606.60
Graphics Arts Tech.	1,232.04	1.22	6.72	1,452.01
Law Enforcement	812.02	.81	76.20	1,109.29
Bus.-Marketing Cert.	919.32	.91	2.16	1,157.25
Mechanical Design Tech.	1,254.83	1.25	10.56	1,516.47

SUMMARY OF AVERAGE PROGRAM COSTS AND COST DIFFERENTIALS

Community College F

Program	Average Yearly Operating Cost per Student	Cost Differential	Average Yearly Depart. Capital Outlay	Average yearly Total Program Cost per Student
Bus.-Real Estate Certificate	879.39	.87	2.43	1,107.75
Bus.-Real Estate	908.38	.90	1.44	1,128.26
Bus.-Executive Secr.	996.03	.99	2.16	1,231.60
Bus.-Secretary Cert.	967.68	.96	2.43	1,196.37
Social Work Tech.	1,067.34	1.06	106.68	2,096.54

PROGRAM COST DETAIL BY COURSE AND YEAR

Community College F

Liberal Arts and Sciences

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English	101	3	80.67
English	102	3	80.67
History 109 or 203		3	59.91
History 110 or 204		3	59.91
Language		4	160.88
Language		4	160.88
Speech	108	3	85.89
Elective		4-5	106.48 - 133.10*
Elective		2-3	53.24 - 79.86*
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			1,039.38 - 1,108.78
2nd year:			
Laboratory Science		4-5	138.80 - 173.50
Laboratory Science		4-5	138.80 - 173.50
Language		4	160.88
Language		4	160.88
Literature		3	79.86
Literature		3	79.86
Electives		4	106.48*
Electives		4	106.48*
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			915.87 - 969.11
Average Program cost per student			1,945.25 - 2,077.89
Average yearly cost per student			1,005.78

Community College F

Business-Accounting

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Accounting	102	3	62.07
Business Business Elective	101 or	3	103.68
Business Elective	108 or	3	71.31
Business	172	3	71.31
English	101	3	80.67
Math		3	83.79
Speech	108	3	85.67
Social or Behavioral Science Group II		3	94.53
Typing or Elective	101	3	98.82
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 881.66
2nd year:			
Accounting	202	3	62.07
Accounting	261	3	62.07
Accounting	262	3	62.07
Accounting Internship or Accounting Problems		3	62.07
Business Law	201	3	60.27
Data Processing	101	3	118.86
Economy	201	3	60.93
Social or Behavioral Science Group II		3	94.53
General Elective Group II		3	73.98
General Elective Group V		3	73.98
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			798.17
Average Program cost per student			1,679.83
Average yearly cost per student			839.92
Cost Differential			.84

Community College F

Business Certificates - Accounting Certificate

Course Name and Number		Credit Hours	Course Cost per student
Accounting	101	3	62.07
Accounting	102	3	62.07
Accounting	202	3	62.07
Accounting	261	3	62.07
Business	101	3	103.86
Business	108	3	66.00
Business	172	3	110.73
Data Processing	101	3	118.86
Math 100, 101 or 125		3	109.77*
Typing or Elective	101	3	98.82
General Education Elective		6	159.72

Average Program cost per student	1,016.04
Average yearly cost per student	1,016.04
Cost Differential	1.01

Community College F

Business-Administrative Office Assistant

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Accounting	102	3	62.07
Business	101	3	103.86
Business	220	3	65.61
English	101	3	80.67
English	102	3	80.67
Math or Science Elective		3	61.41
Typewriting		2-3	65.88 - 98.82
Typewriting		2-3	65.88 - 98.82
Elective		3	73.98
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 789.44 - 855.32
2nd year:			
Business	172	3	110.73
Business	201	3	85.53
Business 215, 216, or Economics 201		3	110.73
Business	221	3	65.61
Business	222	3	65.61
Business Law	201	3	60.27
Cooperative Job Seminar or Elective		3	73.98
Cooperative Job Seminar or Elective		3	73.98
Psychology	201	3	61.26
Social or Behavioral Science Group II		3	113.10
Average 2nd year cost per student			888.14
Average Program cost per student			1,677.58 - 1,743.46
Average yearly cost per student			838.79 - 871.73
Cost Differential			.83 - .87

Community College F

Data Processing

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Accounting	102	3	62.07
Data Processing	101	3	118.86
Data Processing	102	3	118.86
Data Processing	201	5	138.67
English	101	3	80.67
English 102 or 121		3	80.67
Math 101 or 121		3	101.34
Math	122	3	118.86
Elective		3	87.85
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 1,037.26
2nd year:			
Accounting 202 or 261		3	62.07
Data Processing	202	5	198.10
Data Processing	203	3	118.86
Data Processing	204	4	158.48
Data Processing	205	4	158.48
Data Processing	206	3	118.86
Data Processing	208	3	118.86
Economics	201	3	60.93
Math	211	5	138.67
Elective		3	79.86
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			1,250.51
Average Program cost per student			2,287.77
Average yearly cost per student			1,143.89
Cost Differential			1.14

Community College F

Business Certificates - Business Management

Course Name and Number		Credit Hours	Course Cost per Student
Accounting	101	3	62.07
Accounting	102	3	62.07
Business 101	101 or		
Typing	101	3	101.34
Business	172 or		
English	101	3	95.70*
Business	220	3	65.61
Business	221	3	65.61
Business	224	3	65.61
Business Law	201	3	110.73
Economics	201	3	60.93
Select One		3	
Business 204, 210, 222, 265, 245, or 246			73.98
Data Processing 101			
General Education Elective		6	159.72

Average Program cost per student	$ 923.37
Average yearly cost per student	923.37
Cost Differential	.92

Community College F

Business Management

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Accounting	102	3	62.07
Business	108 or		
Business Elective Gr. IV		3	66.00
Business	172	3	110.73
Business	220	3	65.61
Data Processing or Business Elective 101		3	118.86
English	101	3	80.67
Speech	108	3	85.89
Beginning Typing or Typing	101	3	62.07
Physical Education		1	33.67
Average 1st year cost per student			$ 931.16
2nd year:			
Business	203 or		
Business Elective Gr. IV		3	63.42
Business	221	3	65.61
Business	222	3	65.61
Business	224	3	65.61
Business Elective Gr. IV		3	73.98
Business Law	201	3	110.73
Economics	201	3	60.93
Psychology	201	3	61.26
Elective Group V		6	159.72
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			794.21
Average Program cost per student			1,725.37
Average yearly cost per student			862.68
Cost Differential			.86

Community College F

Business - Marketing-Management

Course Name and Number		Credit Hours	Course Cost Per Student
1st year:			
Accounting Business	101 or 105	3	68.64
Accounting	102	3	62.07
Business	172	3	73.98
Business	203	3	73.98
Business	210	3	83.34
Data Processing or Business Elective Group IV		3	118.86
English	101	3	80.67
Humanities Group I		3	79.86
Math or Science Elective	3	3	90.99
Beginning Typing or Vusiness Elective Group IV		3	98.82
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			898.55
2nd year:			
Business	204	3	73.98
Business	211	3	83.34
Business	220	3	65.61
Business Law	201	3	110.73
Economics	201	3	60.93
Marketing Management intern. or Bus. Elect. Gr. IV		3	83.34
Marketing Management Intern. or Marketing Problems		3	83.34
Psychology	201	3	61.26
Social or Behavioral Science Group II		3	113.10
General Elective Group V		3	79.86
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			882.83
Average Program cost per student			1,781.38
Average yearly cost per student			890.69
Cost Differential			.88

Community College F

Business Certificates - Insurance Certificate

Course Name and Number		Credit Hours	Course Cost per Student
Business 108 or 109		3	66.00
Business	172	3	110.73
Business	203	3	63.42
Business	265	3	79.65
Business	266	3	79.65
Business	267	3	79.65
Business	268	3	79.65
Business	269	3	79.65
Business Elective Group IV		3	73.98
General Education Elective		6	159.72
Average yearly cost per student			$ 872.10
Cost Differential			.87

Community College F

Business-Insurance

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Business	172 or		
English	102	3	75.57
Business	203	3	63.42
Business	265	3	79.65
Business	266	3	79.65
Data Processing	191	3	118.86
English	191	3	79.86
Humanities Group I		3	79.86
Math or Science		3-4	83.79 - 111.72
Social or Behavioral Science Group II		3	113.10
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 903.17 - 931.10
2nd year:			
Business	267	3	79.65
Business	268	3	79.65
Business	269	3	79.65
Business Elective Group IV		3	61.92
Business Law	201	3	103.86
Economics	201	3	60.93
Insurance Internship Elective Group IV		3	79.65
Insurance Internship Insurance Problems		3	79.65
Psychology	201	3	61.26
General Elective Group V		3	79.86
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			833.42
Average Program cost per student			1,736.59 - 1,764.52
Average yearly cost per student			868.30 - 882.26
Cost Differential			.87 - .88

Community College F

Business Certificates - Clerical Certificate

Course Name and Number		Credit Hours	Course Cost per Student
Accounting	101	3	62.07
Business	101	3	103.86
Business	105	3	66.00
Business	108	3	66.00
Business	172	3	110.73
Business	201	3	85.53
Business	240	1	33.52
Business	241	2	67.04
Business	242	1	34.62
English	101	3	80.67
Speech	108	3	85.89
Typing	201	2	65.88
Typing	202	2	65.88

Average Yearly cost per Student	$ 927.69
Cost Differential	.92

CommunityCCollege F

Business-General Business

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Business	101	3	71.31
Business	105	3	66.00
Business 108 or 109		3	66.00
Business or English	172 or 102		80.67 - 110.73
English	101	3	80.67
Speech	108	3	85.89
Typing	101	3	98.82
Typing	102	3	98.82
General Elective IV		3	73.98
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			851.57 - 881.63
2nd year:			
Business 215 or 216		3	71.31
Business Elective Group IV		6	147.96*
Business Elective Group IV		6	
Social or Behavioral Science Group II		3	87.51*
Social or Behavioral Science Group II		3	87.51
General Elective Group V		3	73.98*
General Elective Group V		6	142.62
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			678.23
Average Program cost per student			1,529.80 - 1559.86
Average yearly cost per student			746.90 - 779.93
Cost Differential			.74 - .78

Community College F

Business-General Office Assistant

Course Name and Number		Credit Hours	Course Cost per student
1st year:			
Business	101	3	71.31
Business	105	3	71.31
Business	108	3	71.31
Business	172	3	71.31
Data Processing	101	3	88.86
English	101	3	79.86
Social or Behavioral Science Group II		3	87.51
Speech	108	3	85.89
Typewriting		2-3	65.61 - 98.82
Typewriting		2-3	65.88 - 98.82
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 826.19 - 892.07
2nd year:			
Accounting	101	3	62.07
Business	201	3	85.53
Business 215 or 216		3	71.31
Business	222	3	85.53
Business	240	1	28.51
Business	242	1	28.51
Business Law	201	3	60.27
Cooperative Job Seminar or Elective Group II		3	73.98*
Cooperative Job Seminar or Elective Group II		3	73.98
Psychology	201	3	61.26
Typing or General Elective Group V		2	65.88
Typing or General Elective Group V		2	65.88
General Elective Group V		2-3	49.32 - 73.98*
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			879.32 - 903.98
Average Program cost per student			1,705.51 - 1,796.05
Average yearly cost per student			852.76 - 898.02
Cost Differential			.85 - .89

Community College F

Electronic Technology

Course Name and Number		Credit Hours	Couse Cost per Student
1st year:			
Electronic Technology	101	3	157.98
Electronic Technology	102	3	157.98
Electronic Technology	103	4	210.64
Electronic Technology	111	3	157.98
English	101	3	80.67
Math 101 or 106		5	157.50
Math 105 or 111		4-5	126.00 - 157.50
Physics	111	3	145.86
Physics	112	3	145.86
Technical Drafting Engineering Graphics	111 or 103	3	106.14
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 1,513.95 - 1,545.45
2nd year:			
Electronic Technology	212	3	157.98
Electronic Technology	213	2	105.32
Electronic Technology	214	4	210.64
Electronic Technology	215	3	105.32
Electronic Technology	216	4	157.98
English 102 or 121		3	80.67
Health	101	2	47.08
Technical Mechanics	214	3	98.58
Elective		3	79.86*
Elective		3	79.86*
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			1,190.63
Average Program cost per student			2,704.58 - 2,736.08
Average yearly cost per student			1,352.29 - 1,368.04
Cost Differential			1.34 - 1.36

Community College F

Graphic Arts Technology

Course Name and Number		Credit Hours	Course Cost per student
1st year:			
Art 101 or 111		2	86.28
Art 111, 207 or Math 102 or 110		2	70.07*
Electronics Technology 100 or 101		3	157.98
Graphics	191	3	165.03
Graphics	102	4	220.04
Graphics	105	3	165.03
Math 100, 101, 109, or 125		3	90.99*
Photography	101	2	55.06
Social or Behavioral Science		3	70.20
Social or Behavioral Science		3	70.20
Typing	101	3	98.82
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			1,317.04
2nd year:			
Data Processing	106	3	118.86
English	101	3	80.67
English 102 or 121		3	80.67
Graphics	201	2	110.02
Graphics	202	4	220.04
one course			
Graphics	203		
Photography	102		
Graphics	204	3	137.55*
one course			
Graphics 203, 204, 205, or 206			
Photography	102	3	137.55*
Elective		3	79.86
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			1,147.04
Average Program cost per student			2,464.08
Average yearly cost per student			1,232.04
Cost Differential			1.22

Community College F

Law Enforcement

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English	101	3	80.67
Law Enforcement	101	3	74.97
Law Enforcement	102	3	74.97
Law Enforcement	103	3	74.97
Law Enforcement	104	3	74.97
Law Enforcement	121	3	74.97
Political Science	101	3	69.06
Political Science	102	3	69.06
Psychology	201 or		
Mental Health	101	3	61.26
Sociology	101	3	61.59
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 783.83
2nd year:			
Law Enforcement	105	3	74.97
Law Enforcement	106	3	74.97
Law Enforcement	107	3	74.97
Law Enforcement	108	3	74.97
Law Enforcement	109	3	74.97
Math or Science		3-4	90.96
Psychology	211 or		
Sociology	102	3	61.44
Speech	108	3	85.89
Elective		3	79.86*
Elective		3	79.86*
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			840.20
Average Program cost per student			1,624.03
Average yearly cost per student			812.02
Cost Differential			.81

Community College F

Business Certificates - Marketing Certificate

Course Name and Number		Credit Hours	Course Cost per Student
Business 108 or 109		3	66.00
Business	172	3	110.73
Business	203	3	63.42
Business	204	3	85.95
Business	210	3	83.34
Business	211	3	83.34
Business Elective Group IV		6	147.96
Data Processing	101	3	118.86
General Education Elective		6	159.72
Average yearly cost per student			919.32
Cost Differential			.91

Community College F

Mechanical Design Technology

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
English	101	3	80.67
Math 105 or 111		4	111.72
Math 106 or 101		5	139 65
Mechanical Technology	111	3	98.58
Mechanical Technology	112	3	98.58
Physics	111	3	145.86
Physics	112	3	145.86
Technical Drafting	111 or		
Engineering Graphics	103	3	137.73*
Technical Drafting	112 or		
Engineering Graphics	104	3	137.73*
Technical Mechanics	131	3	98.58
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			1,262.30
2nd year:			
English 121 or 102		3	80.67
Mechanical Technology	211	2	65.72
Mechanical Technology	212	3	98.58
Mechanical Technology	213	3	98.58
Mechanical Technology	216	3	98.58
Mechanical Technology	217	3	98.58
Mechanical Technology	218	3	98.58
Mechanical Technology	219	3	98.58
Technical Mechanics	213	3	98.58
Technical Mechanics	214	3	98.58
Technical Mechanics	232	3	98.58
Elective (Optional)		(3)	79.86*
Elective (Optional)		(2)	53.24*
Elective		3	79.86*
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			1,180.81 - 1,313.91
Average Program cost per student			2,443.11 - 2,576.21
Average yearly cost per student			1,221.56 - 1,288.10
Cost Differential			1.21 - 1.28

Community College F

Business Certificates - Real Estate Certificate

Course Name and Number		Credit Hours	Course Cost per Student
Business 108 or 109		3	66.00
Business	172	3	110.73
Business	203	3	63.42
Business	245	3	79.92
Business	246	3	79.92
Business	247	3	79.92
Business	248	3	79.92
Business	279	3	79.92
Business	250	3	79.92
General Education Elective		6	159.72

Average yearly cost per student	$ 879.39
Cost Differential	.87

Community College F

Business-Real Estate

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Business	172	3	110.73
Business	203	3	63.42
Business	245	3	79.92
Business	246	3	79.92
English	101	3	80.67
English	102	3	80.67
Humanities Elective Gr. I		3	79.86
Math or Science		3-4	90.99 - 121.32
Social or Behavioral Science Group II		3	70.20
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 945.71
2nd year:			
Business	248	3	79.92
Business	249	3	79.92
Business	250	3	79.92
Business Elective Gr. IV		3	73.98
Business Elective Gr. IV		3	73.98
Data Processing	101	3	118.86
Economics	201	3	60.93
Real Estate Internship or Real Estate Problems		3	79.92
General Elective Group V		3	79.86
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per student			855.89
Average Program cost per student			1,801.60 - 1,831.93
Average yearly cost per student			900.80 - 915.96
Cost Differential			.90 - .91

Community Collegge F

Business-Executive Secretary

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Accounting	101	3	62.07
Business	101	3	103.86
Business	105	3	66.00
Business	172	3	110.73
English	101	3	80.67
Shorthand 101, 201, or 208		4	100.56
Shorthand 102, 202, or 209		4	134.08
Speech	108	3	85.89
Transcription or Typing		2-3	65.88 - 98.82
Typing		2-3	65.88 - 98.82
Physical Education		1	33.67
Physical Education		1	33.67
Average 1st year cost per student			$ 942.96 - 1,008.84
2nd year:			
Business	201 or 222	3	65.61 - 85.53
Business	215 or 216	3	110.73
Cooperative Job Seminar or Elective		3	73.80*
Humanities or Science Elective		2-3	53.24 - 79.86
Psychology	201	3	61.26
Shorthand & Transcription	201 or 208	3-6	100.56 - 201.12
Shorthand & Transcription	202 or 299	3-6	100.56 - 201.12
Social or Behavioral Science		3	94.53
Specialized Dictation & Transcription or Cooperative Job Seminar or Elective		3	98.82
Typing	202	2	65.88
Physical Education		1	33.67
Physical Education		1	33.67
Average 2nd year cost per stud t			892.33 - 1,139.99
Average Program cost per student			1,835.29 - 2,148.83
Average yearly cost per student			917.64 - 1,074.42
Cost Differential			.91 - 1.07

Community College F

Business Certificates - Secretarial Certificate

Course Name and Number		Credit Hours	Course Cost per Student
Accounting	101	3	62.07
Business	101	3	103.86
Business	105	3	66.00
Business	172	3	110.73
Business	201	3	85.53
English	101	3	80.67
Shorthand	208	4	134.08
Shorthand	209	4	134.08
Speech	108	3	58.90
Transcription	208	2	65.88
Transcription	209	2	65.88
Average yearly cost per student			967.68
Cost Differential			.96

Community College F

Social Work Technician

Course Name and Number		Credit Hours	Course Cost per Student
1st year:			
Art or Music		2	102.24*
Art or Music		2	102.24
Biology	105	4	138.64
Biology	106	4	138.64
English	101	3	80.67
English	102	3	80.67
Psychology	201	3	61.26
Social Services	101	3	126.99
Sociology	101	3	61.59
Sociology	102	3	61.59
Physical Education		1	33.67
Physical Education	102	1	33.67
Average 1st year cost per student			$ 1,021.87
2nd year:			
Political Science	105	1	23.02
Psychology	211	3	61.26
Intro. to Recreation	202	2	57.52
Social Services	211	3	126.99
Social Services	212	3	126.99
Social Services	215	3	126.99
Social Services	216	3	126.99
Social Services	231	3	126.99
Social Services	232	3	126.99
Sociology	205	3	61.59
Sociology	206	3	61.59
Speech	108	3	85.89
Average 2nd year cost per student			1,112.81
Average Program cost per student			2,134.68
Average yearly cost per student			1,067.34
Cost Differential			1.06

Community College F

Institutional Expenditures by Function

Education Fund	Included	Not included
Administration	291,175.00	
Instruction	1,687,512.39	9,426.73
Utilities	16,203.64	
Maintenance	22,058.34	
Fixed Charges	6,828.00	457,643.68
Student & Community Services	479,583,96	
Summer School	40,887.33	
Athletics	20,992,66	
Capital Outlay		121,646.23
	2,565,241.32	588,716.64

In addition, $119,646,68 have been identified as departmental capital outlay expenditures but have not been included in operational program costs,

CHAPTER VIII

RECOMMENDATIONS FOR THE COLLECTION OF DATA

Recommendations will be limited to two aspects, general statements appropriate to cost studies and analyses and specific recommendations for a data collection format to be used for the collection of basic data in future studies. A review of the data presented in this study reflects the limitations of using existing data-of-record for 1968-69. Also, since four of six institutions were in a developmental stage, the costs determined in this study were seriously influenced in many cases by new equipment expenditures and low enrollment in new or developing programs.

Consequently, the findings of this study should be accepted as interim and to provide guidance for future studies. It is recommended that future studies should be devoted to more recent data and with adequate time and resources so that results can be used in planning. Established and developing programs and institutions should be treated separately.

Cost studies are, and will continue to become, an important part of the evaluation of education expenditures. In view of the interest in such studies as indicated by the Division of Vocational Education, the Bureau of the Budget, the Board of Higher Education, and the Junior College Board, and in consideration of the time and money consumed conducting such studies, it would seem appropriate that all activities be coordinated. Common bases for data would permit additional analysis and cross-comparisons. Coordination would greatly reduce the preparation time on the part of complying institutions and allow for centralized data evaluation on the part of each or all of the above mentioned agencies. One of the fundamental concerns of persons responsible for the administration of

U.C.S. is the cost of the study itself. The efficiency of such studies would be greatly increased (in accuracy and in time necessary for preparation) if basic data provided by the colleges could be evaluated by a central agency or agencies primarily through the use of automated data processing techniques.

While the procedures for data calculation and evaluation are important, more emphasis must be placed upon the validity of basic data which form the foundation for all calculations. It is necessary to keep in mind during discussion of the following sections describing desired data and collection techniques that the ultimate value of the approach also rests on coordinated processing of the data.

Need

It seems logical that the approval of programs for community colleges would be based upon accurate (1) manpower and student need assessment, and (2) program cost data. Cost data, however, is not available from current studies required in the state nor is it available from this study. While this study does provide an indication of operating expenses and those capital expenditures incurred during 1968-69, it does not adequately describe the financial parameters of any program. An adequate description of program costs can only be achieved through a comprehensive study concerned with the data of selected institutions during a three to four year period.

The state agency responsible for reimbursement, planning and approval of vocational programs should have such information available as a logical basis for decision-making. The demand for resources will always exceed the supply, necessitating a choice as to which institutions offer various programs. This need for data suggests two separate but related procedures.

The first deals with data collection and evaluation on a continuous basis. This procedure is treated in the section describing the Program Cost Identification System. This approach assigns expenditures to programs and courses rather than students. In view of the high costs of starting a program and the low initial enrollment, the treatment of costs on a program or discipline basis appears to be the most equitable approach.

The second procedure deals with the current need for cost data. A three to four-year period is too long to wait for such necessary information. One solution is to go back and study programs or institutions which have been in operation for an appropriate period of time. It must be emphatically stated, however, that it is far easier to design a system and collect data as it develops than to dig into the various and sundry records kept by each college. In some cases, the obtainment of necessary data may require approximation techniques or the use of original payment vouchers.

In addition to the discussion provided in Chapter I, particular emphasis in an ex-post facto study identifying program costs should be given to the following:

1. Actual enrollment in the various sections of a course as compared to the designed enrollment of such courses.
2. Actual enrollment in various programs as an indication of expected enrollment in recently approved programs.
3. The effect of shared facilities upon program expenditures both capital and operational and methods for assigning expenditures shared by various departments or programs.
4. Refinement in existing records so that expenditures can be assigned to the programs and courses to which they in fact apply.
5. The initial enrollment in a program and students completing the program.
6. The courses taken by part-time or special enrollment students as an allowance against designed numbers of graduates of the program and as an indication of possible offerings in addition to courses required by a full program.
7. The amount of time necessary to conduct such studies as an indication of sample size.

While concerns and general procedures (as indicated elsewhere in this report) may be stipulated, the approach used will of necessity vary to accommodate the forms of data available at each institution within the design necessary to collect the desired data.

I. The Program Cost Identification System

The procedures described here are not necessarily limited to those commonly used in unit cost studies. Two limitations of the U.C.S. may be readily identified in that it: (1) assigns all yearly expenditures to students of that year and (2) fails to provide information necessary to evaluate each institution in view of its own potential.

In any cost study, expenditures must be identified and assigned to the educational product--the student. The complexity of expenditure identification and refinements in assignment become difficult when the multitude of categorized expenses, varied curriculum offerings and possible student status combinations are considered. While current per student costs are indicative of educational return per dollar, a term more appropriate for use in statewide planning and reimbursement procedures would be the term *per program cost*. *What would it cost to offer a program in Physical Therapy in terms of operational and capital outlay expenditures?* Numbers of students, of course, affect the cost of the program, but they do so within limits. In relation to instructional time and salary, the costs would be virtually the same, whether five students or fifteen students are enrolled in a course. There is, of course, a maximum number of students which can be taught in a course and a minimum number to be offered a program--which leads to the question of efficiency. Instead of comparing Institution A with Institution B on a student credit hour basis, studies should state that it takes both Institution A and B at least a certain amount in capital and yearly operational expenditures to provide a program for a maximum number (dependent on program) of students. Regardless of enrollment, certain capital expenditures must be made and a certain amount of facility space provided. The expenditure variables must be identified and controlled. Past performance should be evaluated but not necessarily be considered an indication of desired future performance.

With varying degrees of acceptability, basic source data and procedures necessary to a program cost identification system (P.C.I.S.) have been developed. Refinement and implementation are now necessary to produce a useable system. In many cases, institutional expenditures may be identified with sufficient refinement through the general ledger and payroll records. In other cases, detail is lacking and a combination of sources must be consulted. Faculty assignment reports and mid-term student enrollment reports provide data concerning current student enrollment and course offerings to which expenditures may be assigned.

A most serious gap arises, however, in the attempt to identify the potential enrollment of the insitution and the efficiency of its programs. Potential enrollment is limited by the physical facilities and student-to-teacher ratio as determined by a particular area of instruction. Potential enrollment information, although vital, is difficult to determine and in the case of occupational programs it necessitates the involvement and recommendation of teachers and administrators at each particular institution. Though it is difficult to assign a dollar value to a "quality education program", the identification of minimal facility and operation requirements is possible.

Expenditure Identification

Three levels and two general types of costs typify education expenditures. Costs may be assigned and identified at the course, department or discipline, or institution level. The two types of costs refer to: 1) expenditures of a recurring nature which may be assigned to students of a current year and, 2) capital outlay costs incurred in program initiation and equipment replacement which should not be assigned to students of a given year, but rather amortized to a program over a number of years.

Ideally, all costs may be broken down to the course level, but, in practice, methods must be devised to allocate costs such as the travel of instructors, supplies, equipment, administration, maintenance, utilities, etc.

The following list identified various types of costs and the levels at which they occur:

Course

Direct Salary
Special Contractual Services
Special Supplies
Facilities*
Travel - Off-campus Classes
Special Equipment*

Department (Or Discipline)

Indirect Salary
Research Salary
Administrative Salary
Student Advisement
Supplies
Contractual Services
Travel
Equipment*
Facilities*

Institution

General Administration
Learning Resource Center
Student Services and Aids
Maintenance
Utilities
Equipment*
Facilities*

In some cases, costs do not directly correspond to the level or type definitions. Two examples will briefly be discussed. Community colleges are currently being housed in rented, temporary, or permanent facilities. While rental of buildings may be considered a recurring cost, it does in fact supplant the cost of a permanent structure. Building rentals are therefore excluded from operational costs and should be evaluated separately under a comprehensive facility category allowing for a comparison among all institutions. The use of data processing equipment is normally considered a rental or contractual expenditure. It does, however, supplant equipment expenditures commonly incurred in other programs and should therefore be considered equivalent to capital expenditure.

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*Capital expenditures may be identified at these levels but should not be considered operational cost.

In the evaluation of occupation programs, primary concern should be focused at the course and department or discipline levels. Although institutional expenditures must be identified and included in program costs, specific identification (salary, travel, supplies, support, etc.) of such expenditures is not necessary.

Assignment and Allocation

Department and Course Expenditures

1. Salary - The assignment of salary falls into the following categories; administration, counseling, research, direct and indirect salaries, advisement, and recruitment. These categories apply to the responsibility of the classroom teacher. Salaries primarily of an administrative or non-classroom nature will be treated separately as allocated departmental or discipline expenses. While the primary responsibility of the instructor lies in his classroom assignment, there are other professional activities as suggested above. For purposes of uniformity, approximately 10% of the instructional salary should be assigned to these activities and the remaining 90% assigned directly to courses taught on a credit hour basis. Exceptions to this rule are departmental administrative salaries or other special responsibilities necessitating a reduced instructor load. Special assignments should be noted as a percentage of the total instructor assignment with the remaining percentages assigned to teaching responsibilities on a credit hour basis. Indirect salary not directly assigned to a course will be allocated among the various courses taught by department on an equal basis. While the student credit hour has been used as the standard of refinement, it greatly fluctuates during the semester. Calculations-based upon initial, mid-term and final enrollment vary.

The credit hour unit, however, is stable and well suited to the identification of program costs. Course costs determined from current and potential enrollment figures, will accurately and meaningfully depict program costs. It should also be noted that there is no single standard to which all programs can be compared. Standards can only be developed through empirical study.

2. Supplies and Materials - These operational costs are normally identified on a department or discipline level. Such expenditures are then allocated on the ratio formed by the credit hours offered by that discipline or department. Supplies and other expenses will be assigned directly to a course when applicable.

   In the case of supplies, but not other operational expenditures consideration must also be given to the nature of the class (i.e. lecture, or lab). Supply expenditures other than those used for general instruction will not be assigned to lecture classes. Where possible, supply expenditures will be assigned to the course(s) for which they have been incurred.

3. Contractual Services - Allocated on the same basis as supplies and materials.
4. Travel - Allocated on the same basis as supplies and materials.
5. Other - Secretarial, work scholarship, etc. Allocated on the same basis as supplies and materials.
6. Capital Expenditures - Capital expenditures are not to be considered as operational expenses. While various depreciation formulas may be devised, they only serve the attempt to assign such expenditures on a per pupil or student credit hour basis. Since the life expectancy of equipment varies from program to program and even with programs, a general-

ized depreciation formula should be discouraged. In describing the financial parameters of a program, we may identify yearly operational and capital expenditures normally incurred in the offering of individual programs during the initial three or four years of their existence. This initial period should adequately describe new capital expenditures. As an example, it might take a yearly operational budget of $35,000, and a $150,000 investment in capital expenditures to offer a program in Physical Therapy. After the initial capital expenditure is made, an annual replacement expenditure may be determined.

Institutional Expenditures

General Administration - Above the department level many methods of allocation are available, perhaps all equally equitable. These include the F.T.E., the student credit hour, course credit hour, salary ratio, contact hour ratio, etc. In most cases the course credit hour seems most appropriate. Expenditures of general administration, the learning resource center, student services, general counseling, business affairs, operation and maintenance, utilities and custodial services will therefore be allocated on a course credit hour basis.

Facility expenditures will be treated as capital outlay. They will be identified and treated under a separate heading to allow for a comparison among institutions whether the facility is rented, leased, or permanent. Also included in the facility heading will be any interest on debts for facilities.

Collection and Evaluation Procedures

The following key punch card format is suggested to collect the necessary data for each course. Further refinement would have to be made in discussion with the colleges before adoption

Card Format

Item	Card Columns
1. Course Abbreviation	1-6
2. Course Number	7-9
3. Course Section	10-11
4. Course Credit Hours	12-13
5. Enrollment	14-15
6. Maximum Possible Enrollment	16-17
7. Course Classification Freshman (1), Sophomore (2), Adult (3), Continuing Ed. (4), Foundations (5), or Special (6)	18
8. Instructor (name and identification no.)	19-34 (Name) 35-43 (S. S. No.)
9. Instruction shared or not shared with another instructor. Yes(1) No(2)	44
10. If shared, percentage of instruction devoted to this course by this instructor	45-46
11. Lecture (1), Lab (2), or Practicum (3), etc.	47
12. Number of occupational, transfer, and/or unclassified students	48-55
13. Designed primarily for the following students Occupational (1), Transfer (2), or Either (3)	56
14. Institution code	57-59
15. Program Code	60
16. Department Code	61-62
17. Day or Evening Class	63

The information contained in this format would allow for the following data identification and evaluation procedures.

Identification

1. Items 1, 2, and 3, provide for identification of each course and each section in the case of multiple sections.

2. Items 4, 5, and 6, provide the course credit, enrollment and potential enrollment. Student credit hours and potential student credit hours could also be determined.

3. Item 7 describes the level of course offering. This is particularly critical in technical programs such as electricity where equipment costs are higher and student enrollment lower during the 2nd year.

4. Items 8-10 provide information necessary to the calculation of direct salary assignment.

5. Item 11 defines the nature of the course and provides information necessary to the allocation of departmental expenses.

6. Items 12 and 13 describe the type of student in each class and the intent of the class (Occupational, Transfer, etc.) for the assignment of budget expenditures.

7. Items 14, 15, and 16 will be used as evaluation codes, within the institution and as part of the system.

Evaluation Procedures

(All referenced items may be identified in the card form section.)

1. A sort by instructor would identify the direct teaching load of all instructors. Research, administrative, and/or other special assignments would then be matched against payroll records to determine direct salary costs for each course offered.
2. A sort on items 1, 2, 3, 15, and 16, would provide groupings by discipline to which expenditures identified in the general ledger could be assigned. Consideration must also be given to items 4 and 11-13. While the refinement of expenditure identification varies among institutions and departments, sufficent categorization should be provided for assignment on a program basis (i.e., within the business department, costs should be provided for secretarial, general business, clerical, data processing, accounting, etc.).
3. When all costs have been assigned and calculated, items 5 and 6 would then be used to determine enrollment efficiency, per pupil cost and potential per pupil cost at the course and departmental levels.

4. Efficiency and costs could then be evaluated on the basis of item 7, to provide a comparison for various levels of instruction.
5. Insitutional cost could then be allocated and the evaluation procedures described under 3 and 4 above in this section would again be applied to reflect overall institutional costs.

All assignment and allocation procedures discussed to this point apply only to operational costs. As presently compiled they indicate course, discipline and departmental costs but not program costs. Course costs must now be assigned to programs as listed in the catalog of each institution to obtain program costs. (Refer to Section IV, ChapterI). These assignments could also be made through the use of a computer.

The format and procedures which have been discussed are designed to meet the needs of a Program Cost Identification System for data collected on a continuing basis for occupational programs but could not be modified to meet the demands of other systems or interests.

CHAPTER IX

DISCUSSION, INSTITUTIONAL COMPARISONS, AND SUMMARY

I. DISCUSSION

All data reported in this study were based on the student credit hour as the unit of cost and upon records kept by the six selected institutions. Limitation of these data and considerations affecting their interpretation must be taken into account in establishing the perspective of this report. In some cases, although additional data would have increased the refinement of this study, it was not collectable within the limitations of this study.

A need was identified for verification of the data provided by the community colleges. During the determination of course costs which provided the basis for the determination of all other costs per unit presented in this study, some of the provided data appeared to be in error. A particular reference is made to the assignment of student credit hours to direct salary and the amount of student credit hours assigned to each course. Circumstances at any given institution (enrollment, base pay, nature of the course, etc.) might have explained what appeared to be errors in the assignment of salary to student credit hours. Since it was not possible to verify all collected data in question, a decision was made to accept provided data at face value. The following sections are provided to describe the limitations of the data and discuss considerations affecting its interpretation.

Data Base Period

The data on which all costs in this study have been based is limited to fiscal 1968-69. Within this limitation the data which were presented are an indication of only operating expenditures and do not reflect the capital expenditures necessary for the offering of a program. The data identified and described only those expenditures of a single year and do not indicate the various stages of development of the programs or institution.

To present an accurate picture of necessary operating expenditures an average should be calculated for a 3 to 4 year period. To accurately indicate current operating expenditures an allowance indicating the inflation factor of our economy should also be included.

The identification of capital expenditures, both facility and equipment, requires separate treatment. To identify expenditures required by a new program, accurate cost data describing such expenditures must be collected during the initial 3 to 4 years of program operation. Another consideration in the identification of capital outlay requirements is that of equipment replacement. The cost of replacement equipment could only be determined from the records of an established or on-going program.

Regardless of the nature of expenditures, accurate program costs can only be determined if the period of data collection is extended to include a longer period. Interpretation of the data presented in this report is therefore limited due to: 1) a data collection period of one year, and 2) the data collection period is more than two years old if one considers the beginning of the fiscal period in July of 1968, and 3) institutions and most programs were undergoing development and expansion.

Support Expenditures

Support expenditure data were obtained from the selected institutions at the department and discipline levels but not at the course level. The assignment of data from a department or discipline level to the course level was performed through the use of a generalized assignment formula. While such methods have widespread application, meaningful cost-analysis must assign support expenditures proportionately to the course(s) for which they were, in fact, incurred.

The generalized, or unweighted, assignment procedure unfortunately prorated expenditures equally to all courses, laboratory and lecture, on the ratio formed by the student credit hours generated in a particular course or discipline as compared with the student credit hours generated by each total department. The generalized allocation procedure does not adequately treat the effect of shared equipment and instructional costs in institutions offering similar programs. Also, it does not reflect the very high support costs required by particular courses. Identification and allocation of such differentiated costs were beyond the scope and available data of this study. A relatively simple example will illustrate the principle; the Department of Agriculture at Institution B offered three programs; Agricultural Mechanics, Agriculture Business and Supply, and Agriculture Production and Management. Through the use of the general assignment procedure, all costs of the Department were assigned to each of the programs on the basis of the student credit hours generated by each program and each course forming the program. It is easily seen that all three programs should not share equally in the expenditures incurred by the mechanics laboratories of the Department of Agriculture. Further refinement in expenditure identification and assignment to the courses and programs for which expenditures were incurred would also have affected the program costs and cost differentials among these programs.

Salary Expenditures

Direct salary expenditures were assigned on the credit hour basis with the exception of Institution B. In the case of Institution B, all salaries were assigned on the basis of effort expended by each faculty member among the assignments forming his total instructional load. While a perfect solution to the assignment of salary does not exist at the present time, consistency on a statewide basis must be fostered if meaningful comparisons are to be made.

In view of teacher association contract demands and current methods of salary payment and staff assignment, some persons have recommended that the credit hour ratio be used as a base for salary and teaching assignment. It should be noted that although this method could be used it does not take many important factors into account. The direct salary costs shown in this study reflect as closely as possible the amount reported by the insitutions, each using their own procedures.

Some institutions used the Faculty Assignment Report Form as the basis for assigning direct, indirect, and administrative salaries. The identified percentages of effort for all activities were applied to the gross salary of the instructor providing dollar amounts for each activity. The most common method of direct salary assignment was based upon the credit hour ratio. Indirect salary was identified in either dollar amounts or as a percentage (15%) of the total salary of each instructor. Evening salaries were typically paid on the basis of contact hours.

Enrollment Data

Data showing enrollment were obtained in the form of student credit hours assigned to either the course or discipline. These data did not identify the enrollment in each course and in most cases did not identify the number of sections of a course offered.

The amount of credit for which a course was offered was not indicated in the data obtained from the colleges. The credit for each course was therefore obtained from the appropriate college catalog. The use of two sources, one to obtain credit hours and the other to obtain total student credit hours in a course or discipline, resulted in an apparent discrepancy in that the student credit hours assigned to a course could not always be evenly divided by the credit hours for which the course was offered.

The obtainment of enrollment data on a total student credit hour basis prevented the direct identification of course or section enrollment. A general indication of the number of sections offered and the average enrollment in each of the sections may be determined by dividing the credit hours of a course into the number of students enrolled in all sections for all terms. A subjective judgment can then be made as to the number of sections necessary to support such enrollment. The direct salaries when compared with other direct salaries may also be used to estimate the number of sections offered in conjunction with the derived enrollment figures.

Program Costs - A review of the data in Section two of Chapters II through VII reveals a consistent pattern. Courses which have an unusually high cost per student or per student credit hour can in most cases be traced to a class with very low enrollment. Also since per student course costs were utilized to determine program costs, a very low enrollment in one or two classes included in a program actually results in showing a program cost much higher than would usually be the case. The results shown in this study are especially subject to such influences since many new programs were being developed and many first classes had low enrollments.

Based on operational costs only, advanced foreign language, music and physical education courses were more likely to have the highest individual course costs per student due to low enrollments. Some occupational courses had similar results. The highest cost per student credit hour in the study was for an advanced foreign language class for one student, $390 per student credit hour.

Cost per Student Credit Hour vs Cost per Course vs Cost per Program

Each of these costs are based on the cost of offering a course. Instructional time (salary), space and enrollment focuses on the course. Program costs have been reported in this study as only one of the bases for use in cost analysis. It is most appropriate for gaining an estimate of the costs for the full program. Since a majority of all community college students, including those who enter the so-called transfer programs, will not complete the full two-years of a program, enrollments will be lower and therefore costs higher for the second year courses unless the total program is above a minimum student flow.

More importantly the community college philosophy of serving the needs of the community would result in many students enrolling in selected courses with no intent to complete a full program. First year courses will most often show larger enrollments from this student flow.

II. COMPARISON OF PROGRAM COSTS, COST DIFFERENTIALS, AND INSTITUTIONAL EXPENDITURES AMONG THE SIX SELECTED INSITUTIONS

This section presents summary information based upon data from the six community colleges that provided basic information from their records for use in this study. All calculations and summaries in this study were based upon the data provided by these institutions.

This section is comprised of three summaries:

A Summary of Average Program Costs by School
A Summary of Program Cost Differentials by School
A Summary of Expenditures and Credit Hours of Selected Instructional Areas by School

All costs and comparisons are based on operational expenditures only.

A Summary of Average Program Costs by School

The summary of average program costs by school identifies the average yearly cost per student per program based upon operational expenditures only. Programs are listed within the major occupational areas of Agriculture, Business, Data Processing, Health, Public and

Social Services, Secretarial, Technology, and Trades. Program costs have been identified for each institution as designated by the letter code across the top of the page. In addition, a column has been provided showing average program costs across all colleges. In some cases, only one institution offered a program, the cost of which has been entered in the column designated as average.

For those institutions offering a particular program, the cost has been indicated in dollars under the heading identifying that institution. In most cases, a program is not offered by all institutions. In the case of institutions which do not offer a program, the appropriate space under the insitutional heading has been left blank.

To provide a comparison between the cost of a liberal arts program and the average cost of all occupational programs offered by a single institution, an average of the average yearly costs per student for all occupational programs offered by the institution has been determined. All average yearly occupational program costs for each institution have been totaled and divided by the number of programs offered by that institution providing the "Average Cost for all Occupational Programs" which is the last entry for each institution identified in the table. An average for all occupational programs offered by the six selected institutions has also been determined by totaling all average yearly occupational program costs and dividing this total by the number of programs offered by all institutions. This "grand" average ($1,374.13) is the last entry under the average heading and may be compared with the average of the average yearly cost per student determined for the six liberal arts program ($1,002.91) which is the first entry under the average heading.

The average of the average yearly cost per student for the six liberal arts programs based upon operating expenditures as determined by this study is $1,002.91. In comparison, the average cost determined for occupational programs range from a low of $812.02 for a program in law enforcement to a high of $4,202.76 for a program

SUMMARY OF AVERAGE PROGRAM COSTS
BY SCHOOL

Program	Community College						
	A	B	C	D	E	F	Average
Liberal Arts	1,022.78	987.14	856.78	1,265.42	879.54	1,005.78	1,002.91
AGRICULTURE							
General						1,006.50	1,006.50
Business Managmnt.		1,238.20		2,506.74			1,872.47
Mechanical		968.18					968.18
Supplies & Equip.	936.39	1,230.27					1,083.33
Production				2,060.90			2,060.90
BUSINESS-COMMERCE							
Administration			715.94		924.42	871.73	837.36
Accounting	1,507.56	1,219.79		978.54		839.92	1,136.45
Banking & Finance	951.54						951.54
General					951.01	779.93	865.47
Real Estate						915.96	915.96
Marketing-Retail, Salesmanship						882.26	882.26
Mid-Management Gen.		1,285.55	697.18	1,516.14		862.68	1,090.30
Mid-Management Marketing	903.85						903.85
Retailing Managmnt. one year						923.37	923.37
Insurance Cert.						872.10	872.10
DATA PROCESSING							
Programmer	943.74	1,287.95		1,638.32	1,051.59	1,143.89	1,215.10

SUMMARY OF AVERAGE PROGRAM COSTS
BY SCHOOL

Program	Community College						
	A	B	C	D	E	F	Average
HEALTH & MEDICAL							
Dental Assisting		2,030.49					2,030.49
Dental Hygiene		1,628.92					1,628.92
Medical Records Technician				2,466.18			2,466.18
Nursing-Associate			1,409.84	2,960.66			2,185.25
Nursing-Licensed Practitioner		1,576.93					1,576.93
Operating Room Tech.				2,375.99			2,375.99
Physical Therapy				4,202.76			4,202.76
PUBLIC & SOCIAL SERVICES							
Child Care-Development		961.40			956.96		959.18
Law Enforcement						812.02	812.02
Police Science				1,337.80			1,337.80
Social Work Tech.						1,067.34	1,067.34
Teacher Aide					750.80		750.80
SECRETARIAL							
Clerical General		1,128.64		1,310.94		927.69	1,122.42
Executive Secr.					1,033.05	1,074.42	1,070.24
Office Procedures						898.02	898.02
Secretary Science	1,031.98	1,306.88	1,270.87	1,304.39			1,228.53
Stenographic		1,635.27	1,185.14				1,410.21
Clerk Typist				1,068.28		967.68	1,017.98
TECHNOLOGY							
Automotive Tech.	1,659.76	1,339.20		2,091.40			1,696.79
Pilot			1,035.75				1,035.75

SUMMARY OF AVERAGE PROGRAM COSTS
BY SCHOOL

Program	Community College						
	A	B	C	D	E	F	Average
TECHNOLOGY Cont.							
Drafting-Architectural		1,294.96	1,304.84	1,617.16			1,405.65
Machine Mechanics		1,245.02		1,936.84		1,232.04	1,471.30
Electricity-Industrial	1,615.41			2,260.06			1,937.71
Electronics		1,326.75	1,973.75	2,461.26		1,368.04	1,782.45
Industrial Engin.			1,774.48				1,774.48
Mechanical Design	1,507.56			2,428.20		1,288.10	1,741.29
Mechanical Prod.				2,330.94			2,330.94
TRADES & CRAFTS							
Commercial Art				1,389.17			1,389.17
Diesel & Heavy Equip. Mech.				2,205.24			2,205.24
Other							
Home Economics	1,167.97						1,167.97
Cooperative Ed.							
Accounting				1,217.68			
Secretarial				1,299.56			1,299.56
Average Cost for Occupational Programs	1,197.70	1,335.55	1,263.09	1,958.76	944.64	981.22	1,374.13

for physical therapy assistants. Of the forty-seven "averages" provided, thirteen of the occupational programs were less costly than the liberal arts program while thirty-four occupational programs were identified as being more costly.

Since data available for this study concerning capital expenditures are limited to one fiscal year, a summary of average yearly costs per student per program based upon total institutional expenditures of the selected institutions has not been provided in this Chapter. Chapters II through VII present costs per program based on total institutional expenditures.

A Summary of Program Cost Differentials by School

A Summary of Program Cost Differentials by School based upon the Average Yearly Cost per Student per Program previously discussed, allows for the comparison of cost differentials among the six selected institutions. As in the case of the previously discussed summary, an average cost differential has been determined for the occupational programs offered by a single institution in addition to the grand average cost differential (1.37) based upon all occupational program costs identified in this study. The interpretation of the grand average cost differential (1.37) should be made in view of the following considerations. This cost differential does not reflect capital equipment expenditures for either facilities or equipment. Since four of the six institutions were in developmental stages, inclusion of initial equipment costs would have considerably raised the cost differential. Enrollments were also in a developmental stage as compared to more traditional academic offerings and therefore tended to raise the cost differential determined in this study. Enrollments of established programs would tend to lower the average program cost and the resultant cost differential.

It should also be noted that sixteen of the twenty-two cost differentials determined for Community College F ranked below unity,

SUMMARY OF PROGRAM COST DIFFERENTIALS
BY SCHOOL

Program	Community College						
	A	B	C	D	E	F	Average
AGRICULTURE							
General					1.14		1.14
Business Mangmnt		1.25		2.02			1.64
Mechanical		.98					.98
Supplies & Equip.	.92	1.25					1.09
Production				1.63			1.63
BUSINESS-COMMERCE							
Administration			.84		1.05	.76	.88
Accounting	1.47	1.24		.77		.74	1.06
Banking-Finance	.93						.93
General					1.08	.69	.89
Real Estate						.81	.81
Marketing, Retail.	.93					.80	.87
Salesmanship						.78	.78
Mid-Management Gen.		1.30	.81	1.23		.76	1.03
Mid-Management Marketing	.88						.88
Management 1 yr.						.82	.82
Insurance Cert.						.77	.77
DATA PROCESSING							
Programmer				1.29	1.19	1.14	1.21
HEALTH & MEDICAL							
Dental Assisting		2.07					2.07
Dental Hygiene		1.65					1.65
Medical Records Tech.				1.95			1.95
Nursing-Associate			1.64	2,34			1.99
Nursing-Licensed Practitioner		1.60					1.60
Operating Room Tech.				1.88			1.88
Physical Therapy				3.32			3.32
PUBLIC & SOCIAL SERVICES							
Child Care Devel.		.97			1.09		1.03
Law Enforcement						.72	.72
Police Science				1.06			1.06
Social Work Tech.					.85	.95	.90
SECRETARIAL							
Clerical General		1.14		1.04		.82	1.00
Executive Secretary					1.17	.95	1.06

SUMMARY OF PROGRAM COST DIFFERENTIALS
BY SCHOOL

Program	Community College						
	A	B	C	D	E	F	Average
SECTRETARIAL Cont.							
Office Procedures						.80	.80
Secretarial Sci.	1.01	1.32	1.24	1.03			1.15
Stenographic		1.66	1.38				1.52
Clerk Typist				.84		.86	.85
TECHNOLOGY							
Automotive Tech.	1.62	1.36		1.65			1.54
Pilot			1.21				1.21
Drafting-Architect.		1.31	1.52	1.28			1.37
Machine Mechanics		1.26		1.53		1.09	1.29
Electricity-Industr.	1.58			1.79			1.12
Electronics		1.34	2.30	1.94		1.21	1.73
Industrial Engin.			2.07				2.07
Mechanical Design	1.47			1.92		1.14	1.51
Mechanical Prod.				1.84			1.84
TRADES & CRAFTS							
Commercial Art				1.10			1.10
Diesel & Heavy Equip. Mechanics				1.74			1.74
OTHER							
Home Economics	1.14						1.14
Cooperative Ed.							
Accounting				.96			.96
Secretarial				1.03			1.03
All Occupational **Programs**	1.17	1.35	1.47	1.55	1.07	.98	1.37

tending to bring down the grand average cost differential. Fourteen of these programs were well established and in the business area. All program cost differentials are based upon a comparison of the occupational program costs with the liberal arts program identified at the same institution. The cost differential has been obtained by dividing the average yearly cost per student for the liberal arts program into the average yearly cost per student for each of the occupational programs. The average cost differentials have been determined from totals for average yearly costs of the occupational programs.

Cost differentials for occupational programs range from a low of .72 for the law enforcement program to a high of 3.32 for a program preparing physical therapy assistants. Fifteen of the cost differentials fall below 1 (unity) while thirty-one cost differentials ranked above 1 and a single program was equal to the cost of the liberal arts program. In general, the cost differentials determined for business programs were less than 1, while the cost differentials identified for the remaining occupational programs were greater than 1. These comparisons are based on averages of cost differentials.

Summary of Expenditures and Credit Hours of Selected Instructional Areas by School

The selected instructional areas to which the expenditures identified within this table have been assigned (with the exception of academic, adult and continuing education), correspond to the occupational areas identified in the description of the first table in this Chapter. While additional refinement in the assigning of expenditures within these selected areas was possible from the data obtained from some of the selected institutions, this refinement was sacrificed to maintain consistency among all institutions. The data of this table therefore have been grouped and presented within an instructional area category.

The headings listed across the table identify the types of expenditures and credit hours by instructional area and junior college. The column designated as Direct Salary identifies salary assignments made for the teaching of courses. The Capital Outlay column identifies the expenditures for equipment as incurred in the Education Fund and the Site and Construction Fund. Total Department Assignment refers to all expenditures identified at the department level or the disciplines within each department. The Credit Hours column identifies the student credit hours generated within the instruction area. The total department assignment divided by credit hours provides the data identified in the last column as Total Department Assignment per Credit Hour. The following outline further describes the data presented under each heading of the table.

Area the selected instructional unit to which expenditures are assigned.

Direct Salary - the salary assigned to the teaching of courses listed by institution within the selected area.

Capital Outlay - the equipment costs which have been identified at the department or discipline level from both the Education Fund and the Site and Construction Fund.

Total Department Assignment - the total supportive costs, including administrative salary, indirect salary, contractual service, supplies, and travel identified at the department level and assigned to the instructional area.

Credit Hours - the total student credit hours assigned to each instructional area.

Total Assignment per Credit Hour - the quotient obtained in dividing the total departmental assignment by student credit hours of each instructional area.

The data presented in this table have been compiled from the Departmental Expenditure Identification Section provided for each of the six selected institutions in the original final report.

SUMMARY OF EXPENDITURES AND CREDIT HOURS OF SELECTED INSTRUCTIONAL AREAS BY SCHOOL

AREA	J.C.	DIRECT SALARY	CAPITAL OUTLAY	TOTAL DEPT. ASSIGN.	CREDIT HOURS	TOTAL DEPT. ASSIGNMENT PER CRE. HR.
Agriculture	A	41,408.93	3,492.72	22,127.69	3354	6.60
	B	54,291.47	6,476.83	6,640.69	3032	2.19
	C	---	---	---	---	---
	D	34,528.41	16,633.56	2,071.41	1000	2.45
	E	16,082.48	---	---	844	---
	F	---	---	---	---	---
Business	A	123,282.69	22,469.23	46,674.78	10807	4.32
	B	81,230.06	69,547.31	23,991.32	5461	4.39
	C	84,290.32	13,644.36	7,751.62	4416	1.76
	D	185,139.35	5,304.61	5,651.64	2901	.62
	E	43,582.05	45,215.93	10,357.89	2901	3.57
	F	233,983.44	84,833.65	23,717.60	14553	1.63
Health Occ.	A	---	---	---	---	---
	B	65,435.84	22,557.68	16,187.94	5292	3.06
	C	95,543.09	29.75	2,730.77	3528	4.59
	D	40,870.85	14,490.22	47,479.77	893	52.05
	E	---	---	---	---	---
	F	57,413.55	1,903.72	19,522.11	1315	43.66
Technical	A	147,378.21	---	3,364.87	3334	1.01
	B	59,815.04	61,300.46	12,213.71	2330	5.24
	C	24,735.90	79,306.68	10,193.88	620	16.44
	D	194,670.20	363,364.78	62,598.62	10130	7.00
	E	9,868.66	79,306.68	107.62	342	.31
	F	68,788.44	6,321.80	16,294.22	2324	7.00

AREA	J.C.	DIRECT SALARY	CAPITAL OUTLAY	TOTAL DEPT. ASSIGNMENT	CREDIT HOURS	TOTAL DEPT. ASSIGNMENT PER CRE. HR.
Academic	A	672,889.33	28,206.50	273,745.38	46162	5.93
	B	309,204.84	49,593.22	61,456.07	21625	2.84
	C	580,696.34	10,165.58	33,557.13	43694	.77
	D	813,258.75	55,342.14	45,209.60	51960	.87
	E	273,866.66	37,017.15	34,943.32	25533	1.37
	F	903,957.88	19,816.75	85,981.83	48708	1.76
Public Serv.	A	15,250.21	42.97	5,298.57	687	7.71
	B	2,862.98	---	219.05	291	.75
	C	---	---	---	---	---
	D	---	---	---	---	---
	E	2,726.04	1,408.82	973.22	216	4.50
	F	95,672.79	6,718.01	---	6868	---
Adult & Cont.	A	2,798.98	---	---	254	---
	B	---	---	---	---	---
	C	---	---	---	---	---
	D	---	---	---	---	---
	E	9,093.92	---	592.42	658	.90
	F	82,721.99	---	---	4493	---
Other	A	18,723.60	---	---	1035	---
	B	1,395.19	---	---	375	---
	C	---	---	---	---	---
	D	---	---	---	---	---
	E	---	---	---	---	---
	F	---	---	---	---	---

III CONCLUSIONS

Based upon the data available for this study, the most significant variable affecting the cost per student credit hour, the course cost, and the program is the size of enrollment in individual classes.

Since capital expenditures, the effect of which is also important, were not included in the program costs based upon operating expenditures, their discussion will be treated separately.

Capital outlay in terms of facilities and equipment although not included in the operating costs of this study also significantly affect course and program costs, particularly in the case of new and developing programs. Such costs incurred during the initiation of a program should not be confused with replacement costs necessary to any on-going program. Next to enrollment, capital expenditures are the cause of high units of cost.

It is not possible to interpret a high or low cost per student credit hour without adequate supporting data identifying the contributing variables. Data describing the variables affecting the determination of the cost unit must be considered if sound program planning is to be achieved. The following considerations based upon the experience gained in conducting this study are offered.

1. The designed enrollment of any course or program must be considered in addition to the cost unit determined by actual enrollment. Due to limitations of facilities, equipment, and the nature of instruction, the enrollment of a course may be necessarily limited. Cost units derived on the basis of a lecture class, laboratory class, or supervised work experience cannot be directly compared. Even if the salary assigned to each course is equal, the ability of a lecture class to support a larger enrollment will of course result in a lower cost unit when compared with laboratory or supervised work experience classes which must be comparatively smaller due to the nature of the learning experience.

Comparisons should be made between the cost unit based upon actual enrollment and the cost unit based upon the designed enrollment of the program. It is important to note that the designed enrollment suggests a range, an acceptable minimum to a maximum, of students which can be accommodated. It should not be assumed that maximum enrollment is necessarily a standard to be achieved.

2. The type, specialty area, and nature of the program must be considered. For example, a comparison should not be made between a program in re-teaching and a program in radiologic-technology. The latter necessarily costs more per unit. A limited enrollment, specialized instruction, and expensive equipment are required. A dollar comparsion of these programs only supports predetermined expectations. The cost of such specialty programs can often be justified in view of manpower, student and community needs.

3. The nature of the instruction peculiar to a course or a program must be considered. Again, a direct comparison of cost units on a dollar basis should be discouraged. The cost of lab courses, extension courses, and supervised work experience courses will be higher than that of the lecture course. These courses are offered because they are important to the program or the community and their high cost per unit of instruction does not diminish their importance. Some courses must be available for a complete program at a community college while others can be delayed until after transfer to a senior institution where they are offered regularly.

4. The number of years a program has been in operation should be considered when comparing cost units. It can be expected that a new program will have low initial enrollment. This low enrollment coupled with high initial costs results in a high cost per unit whether it is a student credit hour, course, or program. While low initial enrollment is to be expected, consistent low enrollment over a number of years should be questioned. Low enrollment

over a number of years may indicate that the college lacks an adequate population or student interest to support such a program. If, however, the graduates of such a program are needed and an equivalent program is not available elsewhere it may be continued in spite of its high cost.

Another option available in the case of high cost-low enrollment programs requires the cooperation of neighboring community college districts. Based upon manpower needs and student availability, one institution may offer such programs for two or more districts. Or, both districts may offer the first year of a program while only one may offer the second year. The decision as to which district or institution should offer the program should be based on objective factors such as transportation of the students and the ability to provide facilities. Unfortunately, the subjective factor of local prestige often influences whether or not a program is offered.

The number of years a program has been in operation also influences enrollment in basic courses and more advanced sophomore courses. Persons who dropout, for whatever reason, tend to fill introductory courses and may limit the potential student pool available for more advanced courses. This limitation of available students for advanced courses coupled with the nature of instruction of advanced courses curtails the enrollment. Specialized equipment costs are often greater for advanced courses and may have a low utilization rate.

The most successful means of recruiting students in vocational programs have been the graduates of these programs. If adequate consideration is given to this pattern, a program must be in operation for at least 3 to 4 years before a dependable student population can be established.

IV. SUMMARY

This study was conducted as an exploratory attempt to identify data affecting the costs of occupational programs and contained the following objectives stated in the original proposal:

A. To provide differential program costs within the limitation of available data from the Illinois Junior College Board and collectable data limited by the time period of this project.

B. To review and report alternate methods of allocating program costs to various occupational curricula.

C. To determine collection and analysis procedures necessary to effective determination of differential program cost data.

D. To provide recommendations for data collection and analysis necessary to an effective program cost differential system.

These objectives have been accomplished within the limitation of the project. Particular reference should be made to Objective A, the development of program costs. Upon review of the Junior College Unit Cost Study, it was decided that the data contained within that format were not adequate for the purposes of this study. A selection procedure was then developed to collect necessary data from six institutions. The program costs and cost differentials developed in this study have several limitations: 1) data were included from only six community colleges, and more importantly, 2) expenditures were those incurred during one fiscal year, 1968-69, and, 3) expenditures were allocated to courses on a generalized basis. The program and course cost information provided should be considered only as an indication of the operating costs incurred during the fiscal year 1968-69, and should not in any way be construed as the long term operating costs or as an indication of the capital expenditures necessary to the operation of the described programs.

The strength of the study lies in its description of the state-of-the-art in cost studies conducted in the State of Illinois and its recommendations for future studies. Specifically, the study has: 1) stressed the need on the part of the Division of Vocational and Technical Education for accurate cost data, 2) pointed to some of the limitations of the Unit Cost Study conducted by the Illinois Junior College Board, 3) described some of the problem areas and weaknesses of methods used to allocate costs, and, 4) has provided recommendations necessary to implementing an accurate program cost identification system.

This study is only the first step in cost studies which will become an essential source of data to those concerned with occupational programs. Accurate program cost data will be used to support requests for funds, establish equitable procedures of reimbursement, and allow for the optimum placement of occupational programs within the State of Illinois.